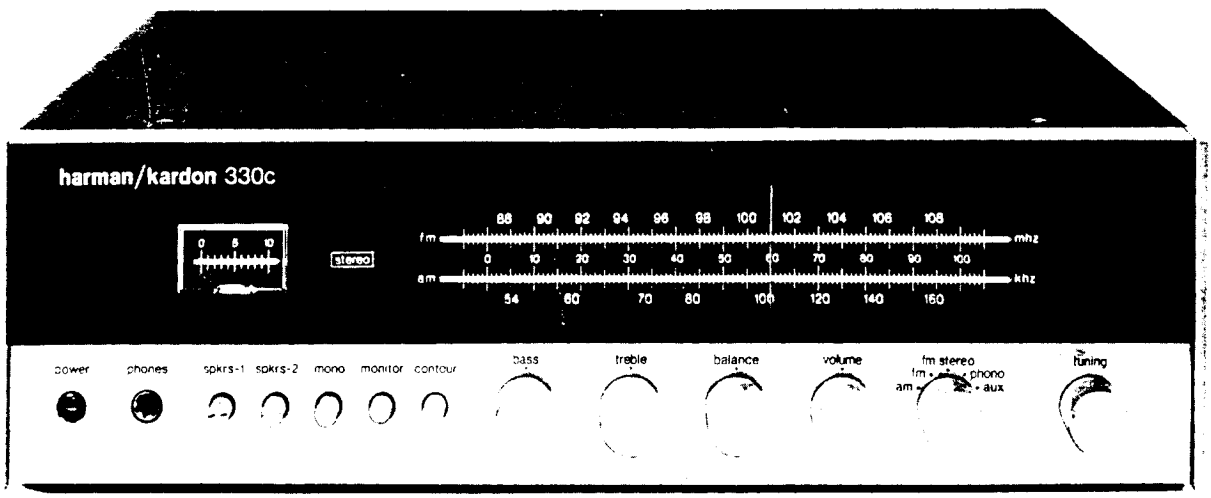
The Harman/Kardon Model 330c

AM/FM/FM Stereo Solid State Receiver

Technical Manual



harman/kardon

PRECAUTIONS

1. Always disconnect the chassis from power line when soldering. Turning the power switch OFF is not enough. Power line leakage passing through the heating element may destroy the transistors.

2. Never attempt to do any work on the transistor amplifiers without first disconnecting the AC line cord and waiting until the power supply filter capacitors have discharged.

3. Replacement for output and driver transistors, if necessary, must be made from the same beta group as the original type.

4. If one output transistor burns out (open or short) always remove all the output transistors in that channel and check the bias adjustment, the control and other parts in the network with an ohmmeter before inserting a new transistor. All transistors in one channel will be destroyed if the base biasing circuit is open on the emitter end.

5. When mounting a replacement power transistor, be sure that the bottom of the flange, the mica insulators and the surface of the heat sink are free of foreign matter, for they may cause transistor failure.

6. Silicon grease must be applied between the transistor and the mica insulator, and between the mica insulator and the heat sink for better heat conduction.

7. Fuses must be replaced with size and type indicated. Use of other types can expose components to destructive current levels.

ALIGNMENT PROCEDURES

AM ALIGNMENT PROCEDURE

INSTRUMENTS: *AM Signal Generator modulated with 400Hz at 30%.
*VTVM.
*AM Sweep Generator and Oscilloscope.

NOTE: *Set Function Selector Switch to AM.
*Connect signal source to a placed to radiate signals into AM Antenna Loop Stick (L251).

STEP	SIGNAL SOURCE	FREQUENCY	CONNECT OUTPUT METER TO	DIAL SETTING	ADJUST	ADJUST FOR
1	AM Sweep Generator	455kHz	VTVM and Oscilloscope to R269 (4.7 k ohm)	Quiet Point Near 1600kHz	T251	Maximum and Undistorted Pattern on Oscilloscope
2					T252	
3					T253	
4	Repeat Steps 1 through 3 for best sensitivity					
5	AM Signal Generator	600kHz	VTVM and Oscilloscope to R269 (4.7 k ohm)	600kHz	L252	Maximum Output
6	Same as Above	1600kHz	Same as Above	1600kHz	TC251 (on Front End)	Maximum Output
7	Repeat Steps 5 and 6 for best dial accuracy					
8	AM Signal Generator	600kHz	VTVM and Oscilloscope to R269 (4.7 k ohm)	600kHz	L251	Maximum Output
9	Same as Above	1600kHz	Same as Above	1600kHz	TC252 (on Front End)	Maximum Output
10	Repeat Steps 8 and 9 for best sensitivity					

MPX ADJUSTMENT

INSTRUMENTS: *Frequency Counter.
*Signal Generator.

NOTE: *Set Function Selector Switch to FM.
*Connect Signal Source to FM Antenna Terminals.

STEP	FREQUENCY	SIGNAL STRENGTH	DIAL SETTING	CONNECT OUTPUT TO	ADJUST	ADJUST FOR
1	98MHz (unmodulation)	1mV (60dB)	Tune for Volts DC at R226 (47 k ohm)	Frequency Counter to LP205	VR301	19kHz±50Hz

STEREO INDICATOR LAMP ADJUSTMENT

INSTRUMENT: *Stereo Signal Generator.

NOTE: *Set Function Selector Switch to FM.
*Connect Signal Source to FM Antenna Terminals.

STEP	FREQUENCY	SIGNAL STRENGTH	DIAL SETTING	OUTPUT	ADJUST	ADJUST FOR
1	98MHz (Stereo Signal)	50μV (34dB)	Tune for Volts DC at R226 (47 k ohm)	Stereo Indicator Lamp	VR302	Light ON
2	Check Pilot level that Stereo Indicator lights at 6% of pilot level and that the indicator does not light at 1%.					
3	Return pilot level to 9% and check Stereo Separation at 1 kHz, 100Hz and 10 kHz.					

FM ALIGNMENT PROCEDURE

INSTRUMENTS: *FM Signal Generator modulated with 100Hz at 100%.
*AC/DC VTVM and Oscilloscope.

NOTE: *Set Function Seelctor Switch to FM.
*Connect Signal Source to FM Antenna Terminals.

STEP	FREQUENCY	SIGNAL STRENGTH	DIAL SETTING	CONNECT OUTPUT METER TO	ADJUST	ADJUST FOR
1			Quiet Point on Band	Oscilloscope to R226 (47 k ohm)	T201 Top and Bottom (on Front End)	Maximum Noise
2			Same as Above	Same as Above	T202 Top	Zero Volts DC
3	Near 98MHz	-1 dB of Limiter Saturation	Tune for Zero Volts DC at R226 (47 k ohm)	Oscilloscope to Tape Out Jack	T202 Bottom	Maximum Symmetric Output on Oscilloscope
4	Repeat Steps 2 and 3 until no further improvement is noticed					
5	90MHz	Approx. 10μV	90MHz	Oscilloscope to R226 (47 k ohm)	L201 (OSC) (on Front End)	Zero Volts DC
6	106MHz	Approx. 10μV	106MHz	Same as Above	TC201 (OSC) (on Front End)	Zero Volts DC
7	Repeat Steps 5 and 6 until no further improvement is noticed					
8	90MHz	-3dB of Limiter Saturation	Tune for Zero Volts DC at R226 (47 k ohm)	VTVM and Oscilloscope to Tape Out Jack	L202 (RF) T203 (ANT) (on Front End)	Maximum Output
9	106MHz	Same as Above	Same as Above	Same as Above	TC202 (RF) TC203 (ANT) (on Front End)	Maximum Output
10	Repeat Steps 8 and 9 until no further improvement is noticed					

POWER AMPLIFIER IDLING ADJUSTMENT

INSTRUMENT: *DC VTVM.

NOTE: *Set Function Selector Switch to AUX.
*Set Volume Control to minimum and set Tone/Balance controls to mid position.
*Set Stereo/Mono Switch to Stereo.
*Speaker Switch to ON.
*Connect 8 ohm (50W) resistor across left and right speaker terminals.

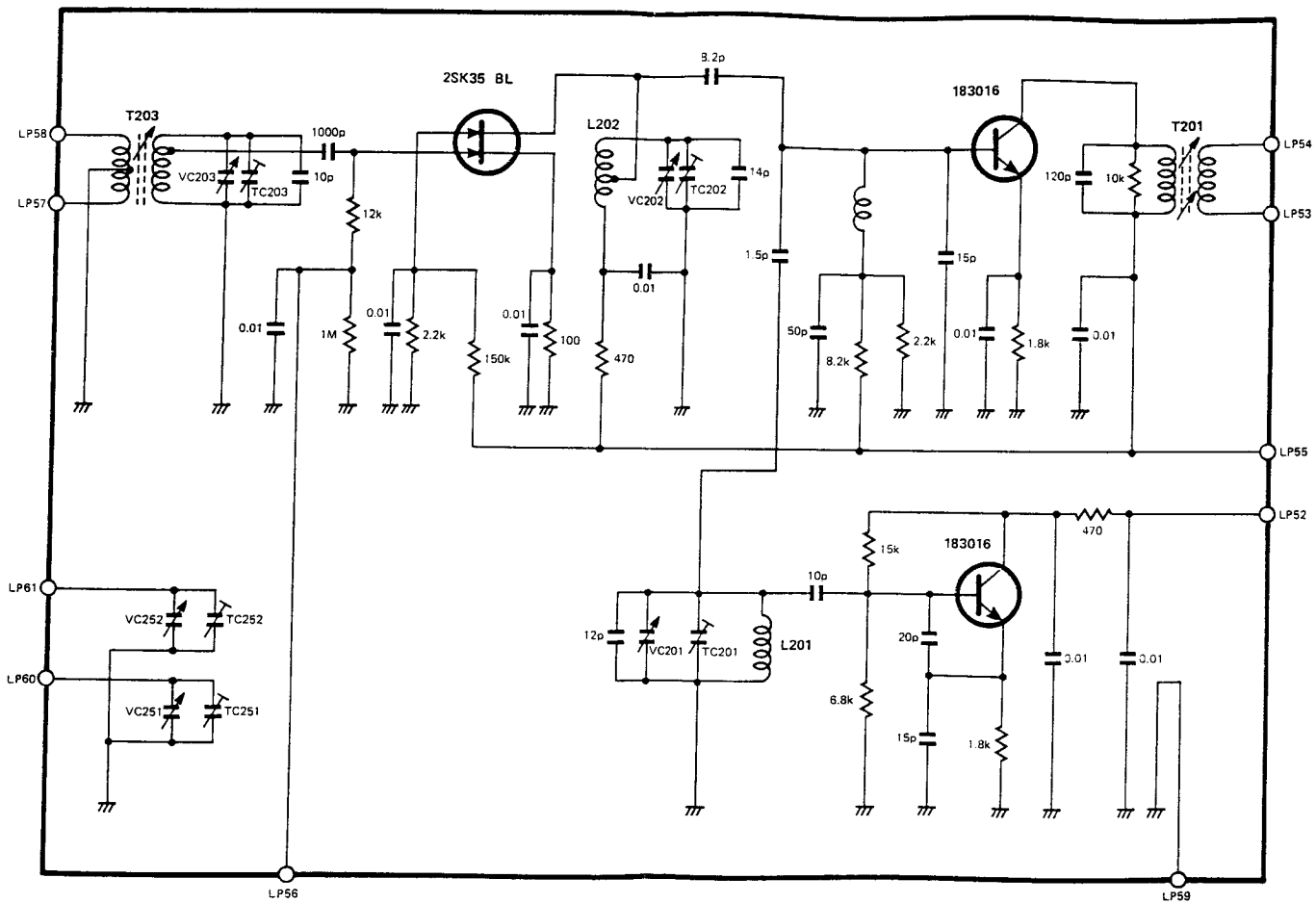
STEP	DC VOLTMETER CONNECTION	ADJUST	ADJUST FOR
1	Across R428 Resistor	VR402	10mV±1mV
2	Across R427 Resistor	VR401	10mV±1mV

TUNING INDICATOR ADJUSTMENT

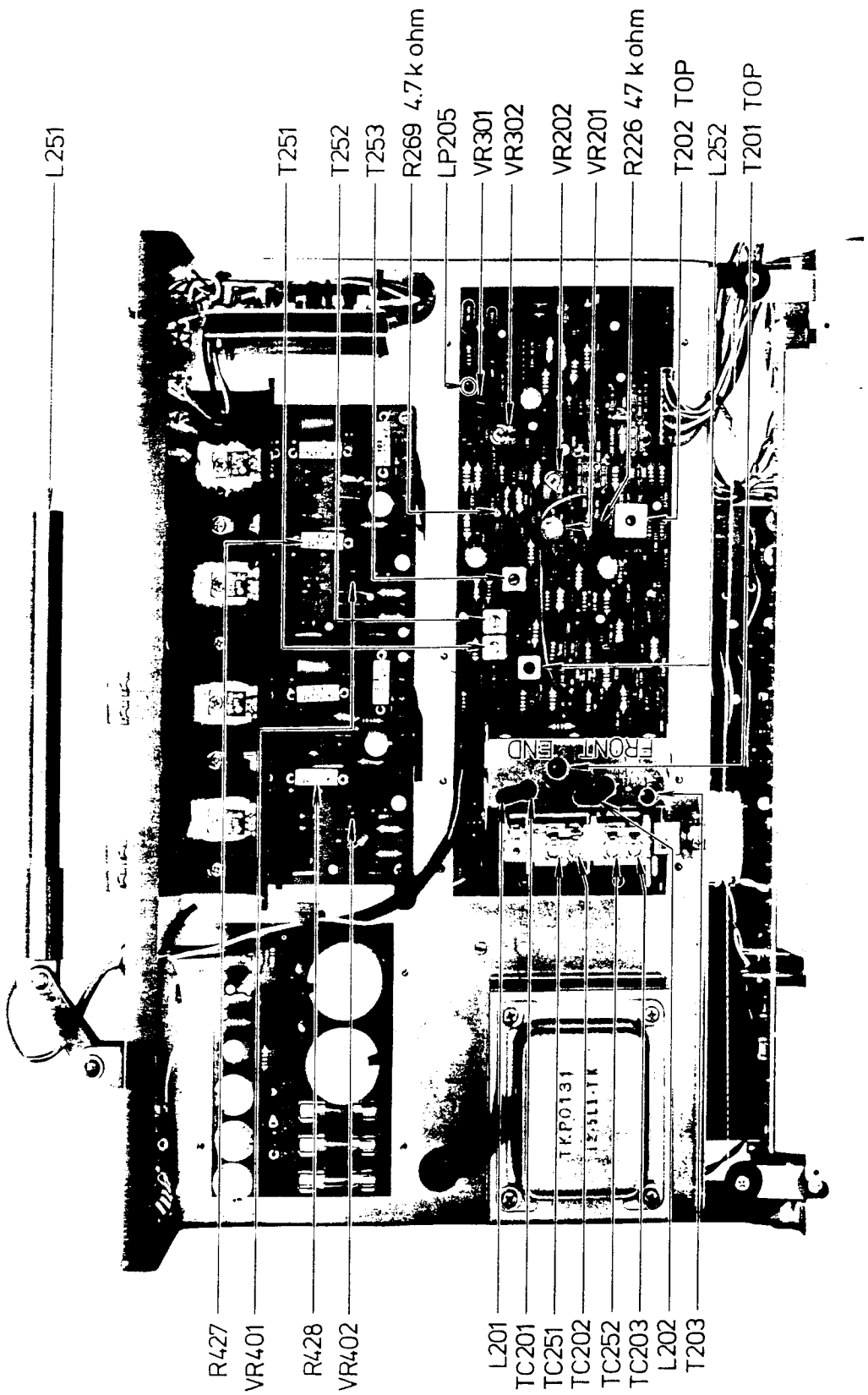
INSTRUMENT: *FM Signal Generator.

NOTE: *Set Function Selector Switch to FM.
*Connect Signal Source to FM Antenna Terminals.

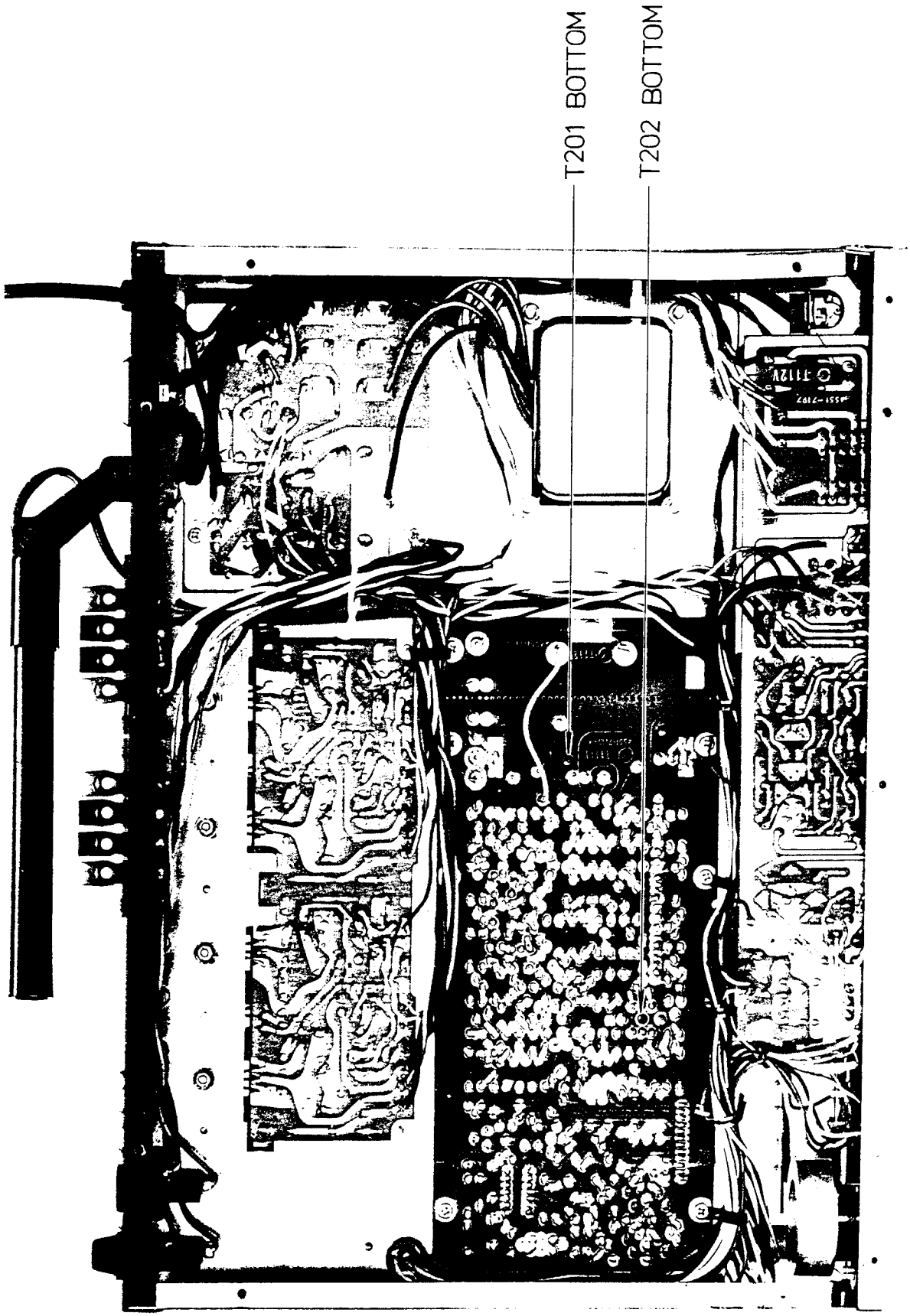
STEP	FREQUENCY	SIGNAL STRENGTH	DIAL SETTING	ADJUST	ADJUST FOR
1	98MHz	1mV(60dB)	Tune for Zero Volts DC at R226 (47 k ohm)	VR201	Maximum Needle Deflection on Tuning Meter
2	Same as Above	Same as Above	Same as Above	VR202	To Indicate 9 on Tuning Meter


T203
LP58
LP57
VC203
TC203
10p
1000p
12k
0.01
1M
0.01
2.2k
150k
0.01
100
470
2SK35 BL
3.2p
L202
VC202
TC202
14p
0.01
1.5p
183016
T201
LP54
LP53
120p
10k
15p
50p
8.2k
2.2k
0.01
1.8k
0.01
LP55
LP52
470
183016
15k
10p
12p
VC201
TC201
L201
20p
6.8k
15p
1.8k
0.01
0.01
LP61
VC252
TC252
LP60
VC251
TC251
LP56
LP59

ALIGNMENT POINTS

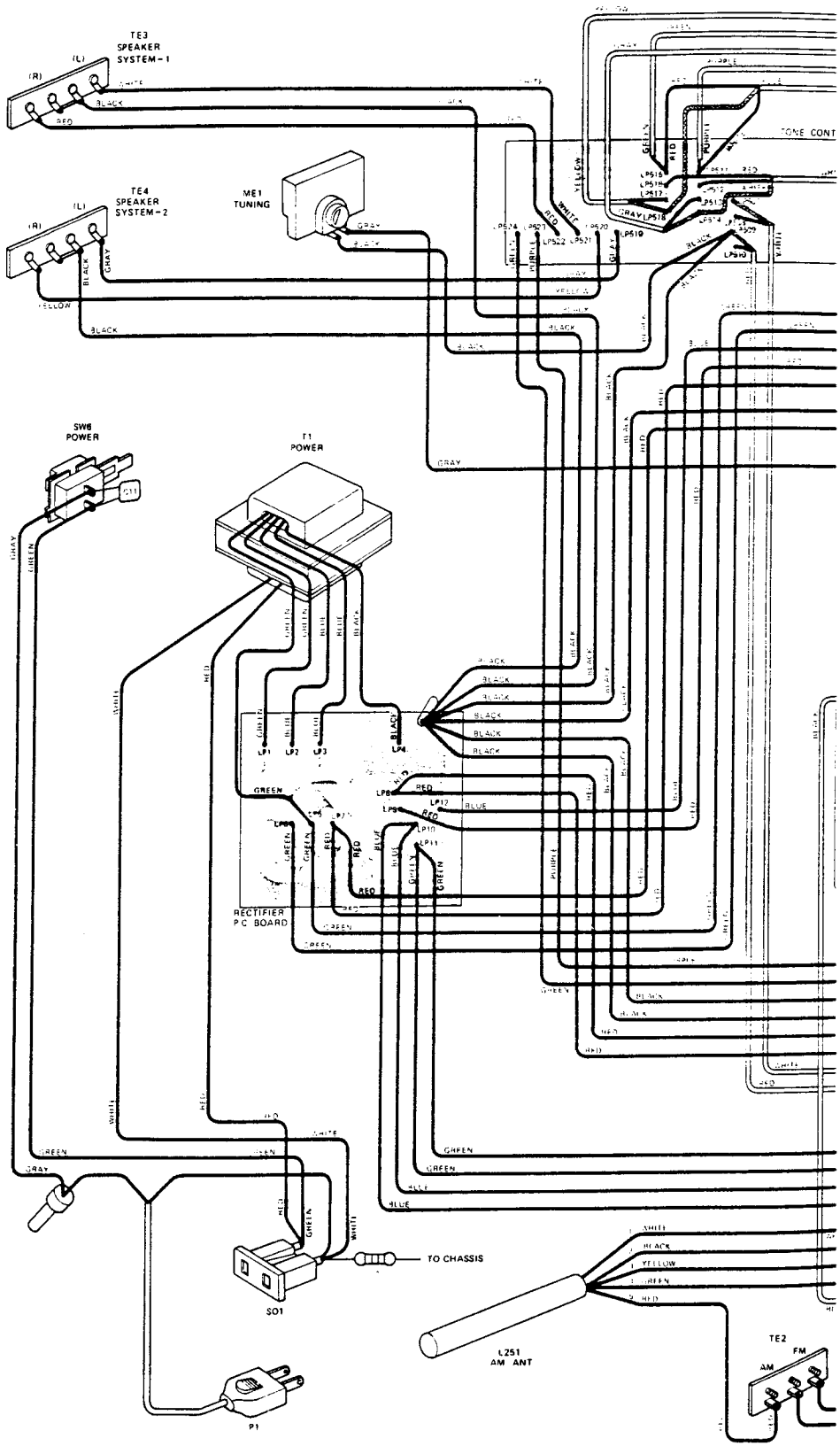


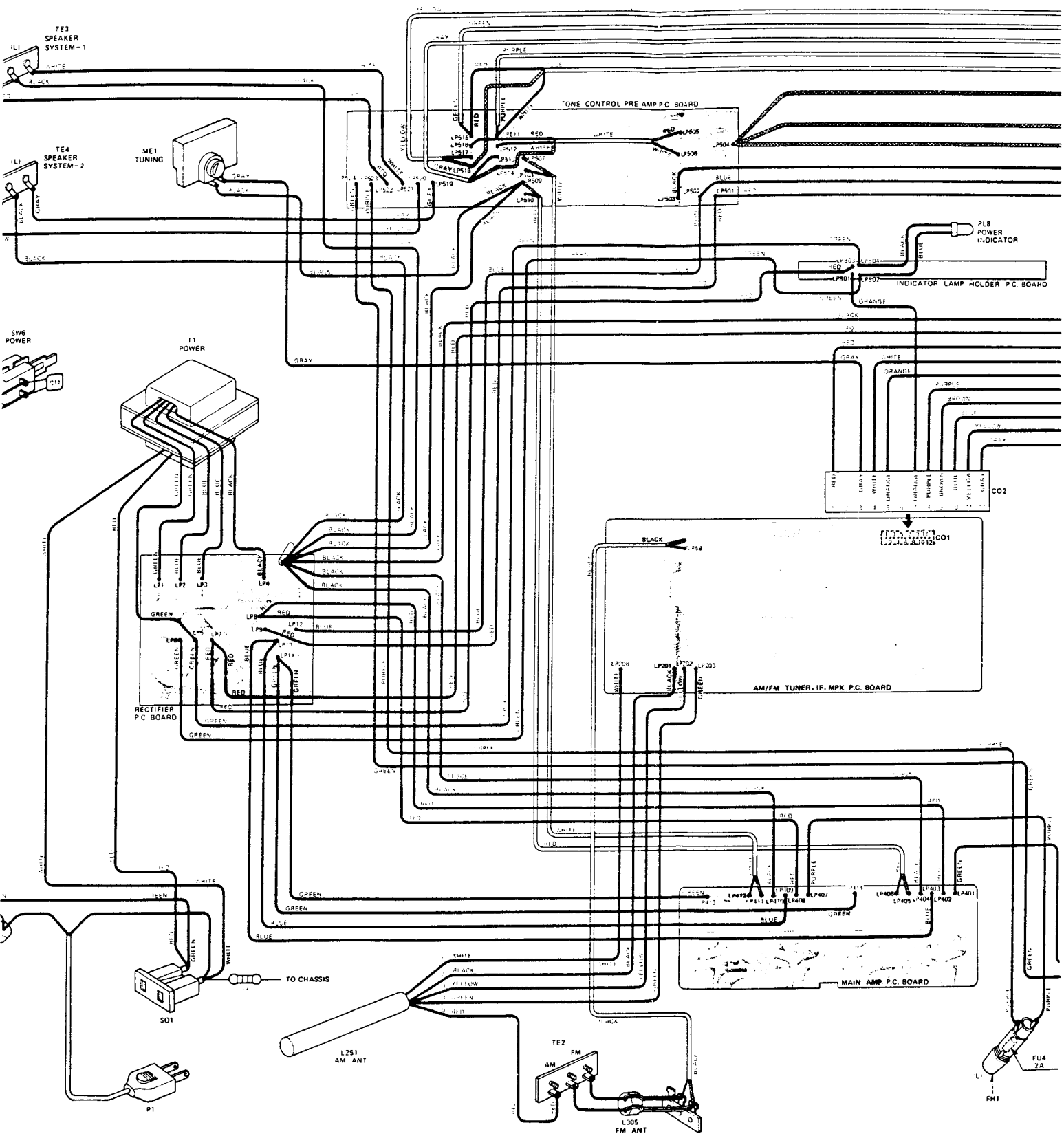
TOP VIEW

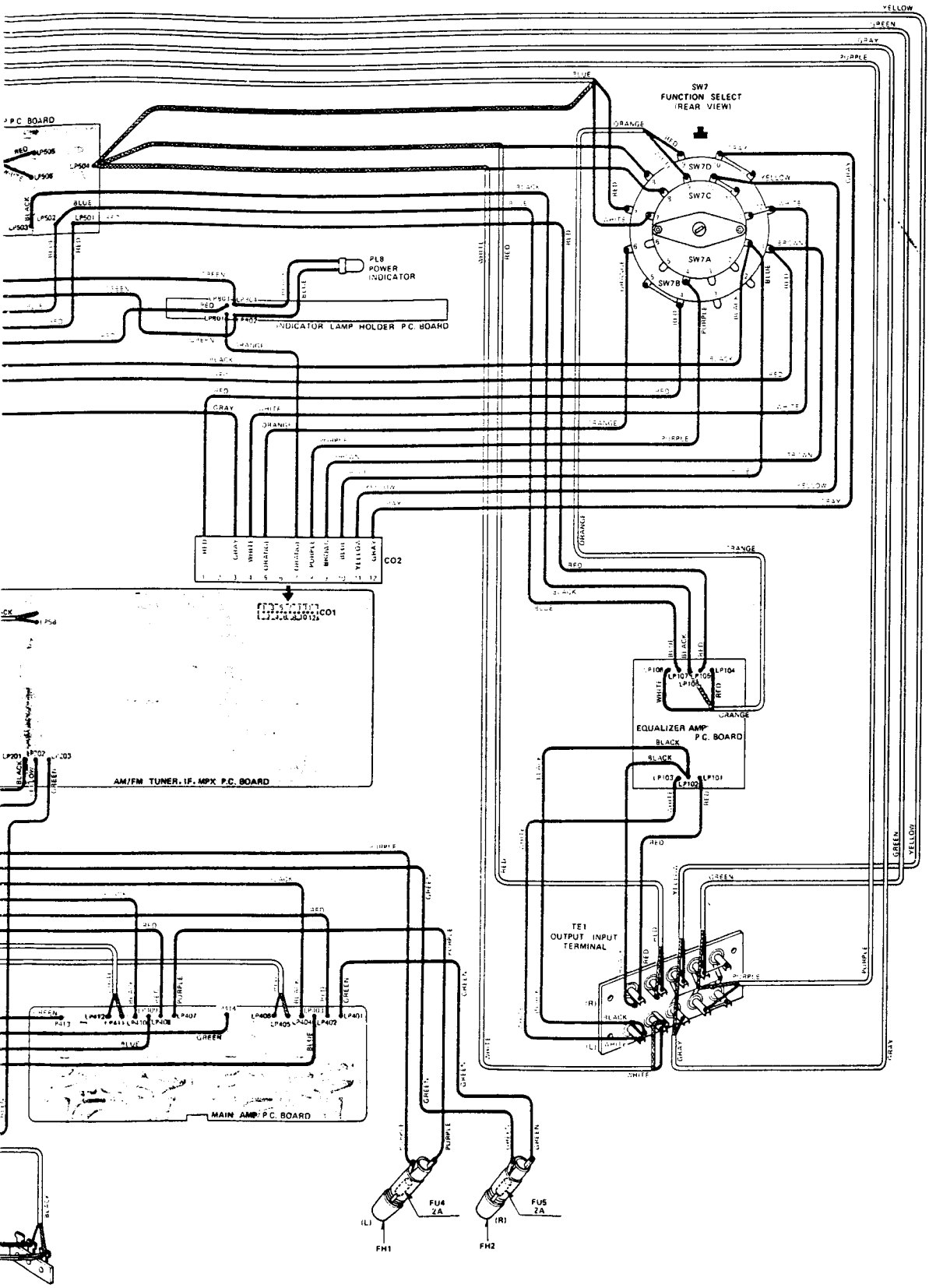


BOTTOM VIEW

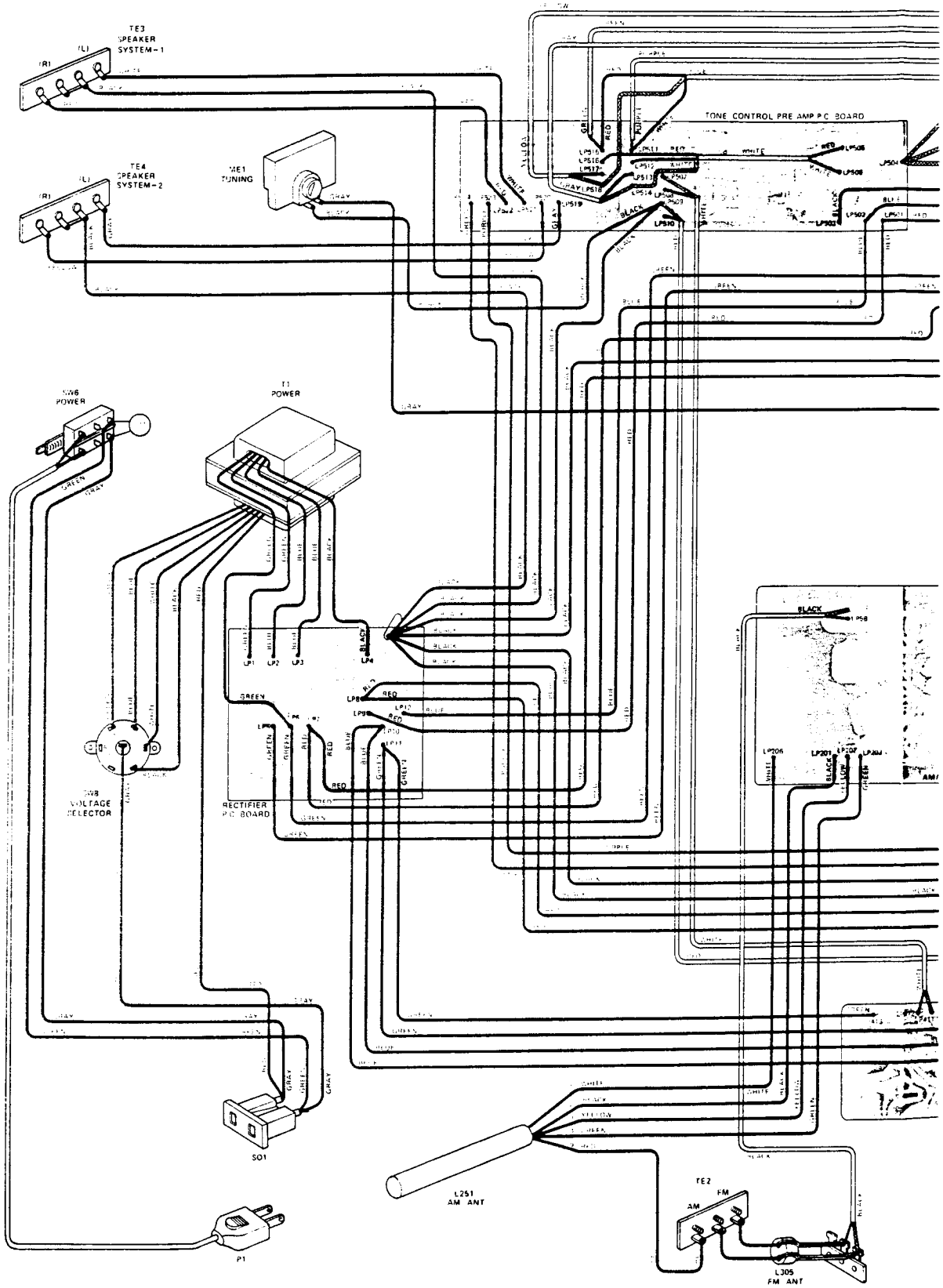
WIRING DIAGRAM – REGULAR

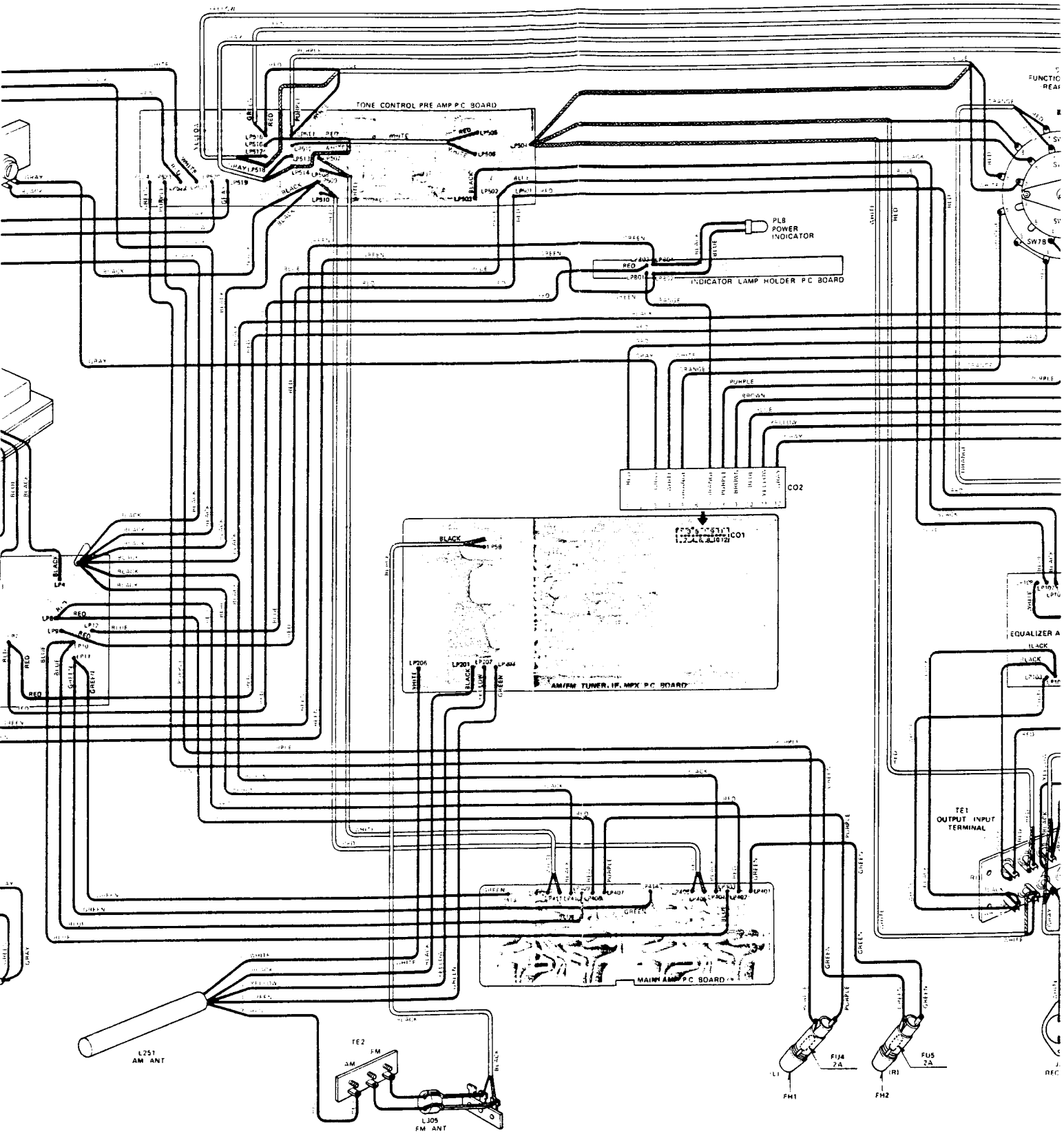


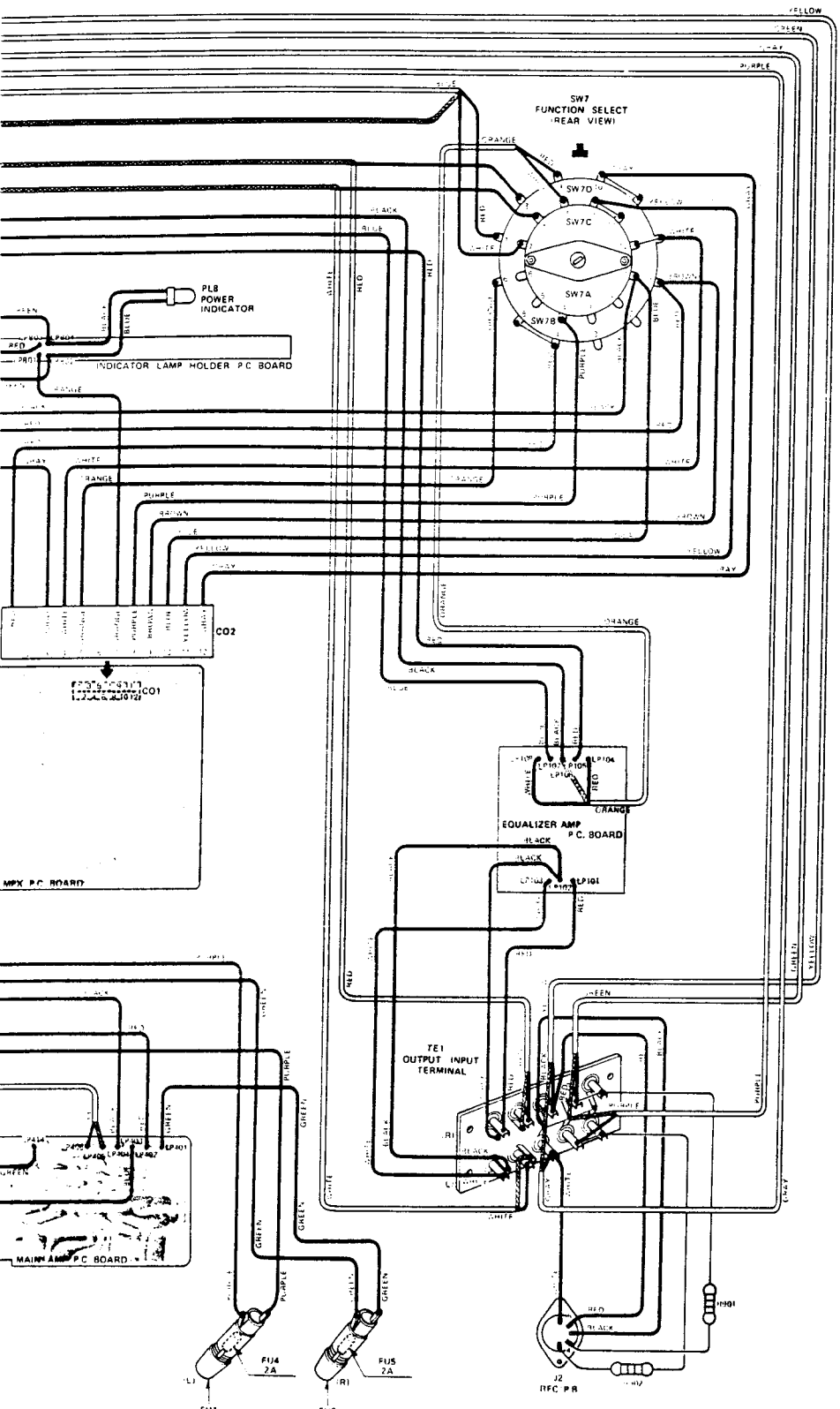

TE3
SPEAKER
SYSTEM-1
TE4
SPEAKER
SYSTEM-2
ME1
TUNING
TONE CONTROL PRE AMP P.C. BOARD
PL8
POWER
INDICATOR
INDICATOR LAMP HOLDER P.C. BOARD
SW6
POWER
T1
POWER
CO2
CO1
AM/FM TUNER, IF, MPX P.C. BOARD
RECTIFIER
P.C. BOARD
MAIN AMP P.C. BOARD
TO CHASSIS
SO1
P1
L251
AM ANT
TE2
FM
AM
L305
FM ANT
FU4
2A
F1


SW7
FUNCTION SELECT
(REAR VIEW)
SW7D
SW7C
SW7A
SW7B
PL8
POWER
INDICATOR
INDICATOR LAMP HOLDER P.C. BOARD
CO2
CO1
AM/FM TUNER, IF, MPX P.C. BOARD
EQUALIZER AMP
P.C. BOARD
TE1
OUTPUT INPUT
TERMINAL
MAIN AMP P.C. BOARD
FU4
2A
FU5
2A
FH1
FH2

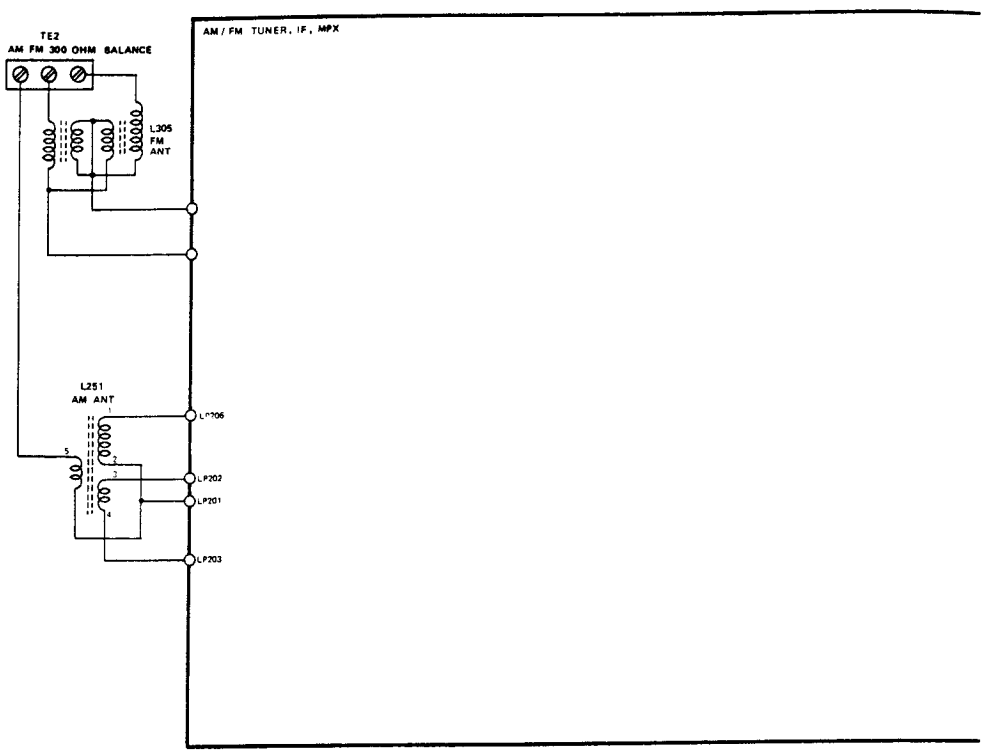
WIRING DIAGRAM – MULTI

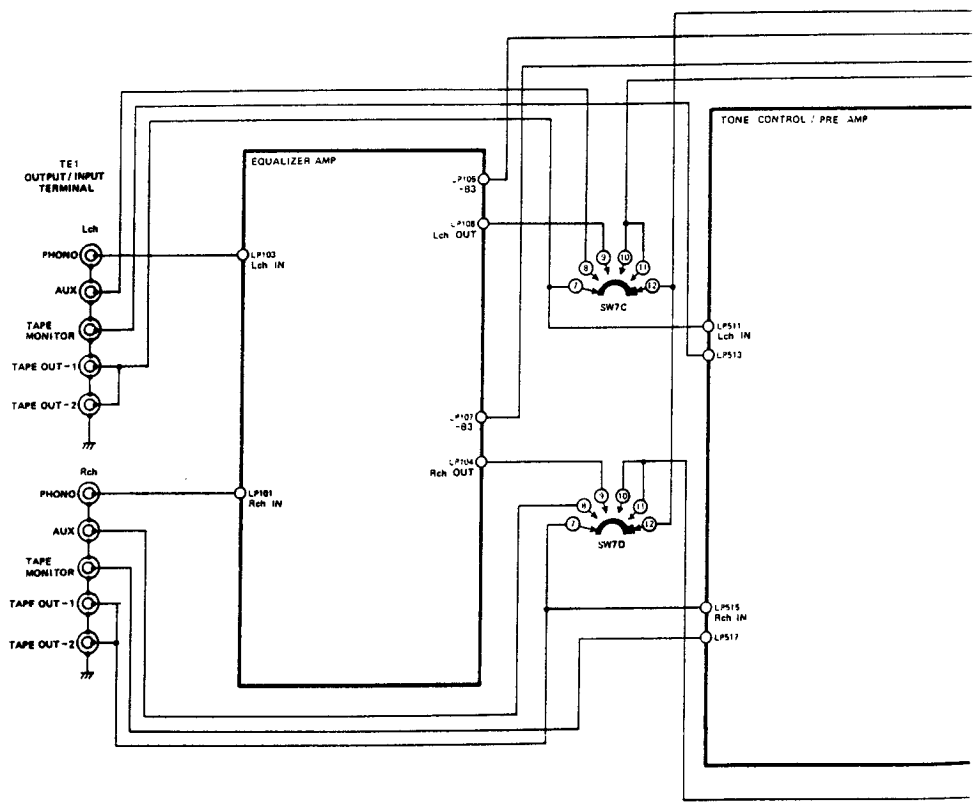


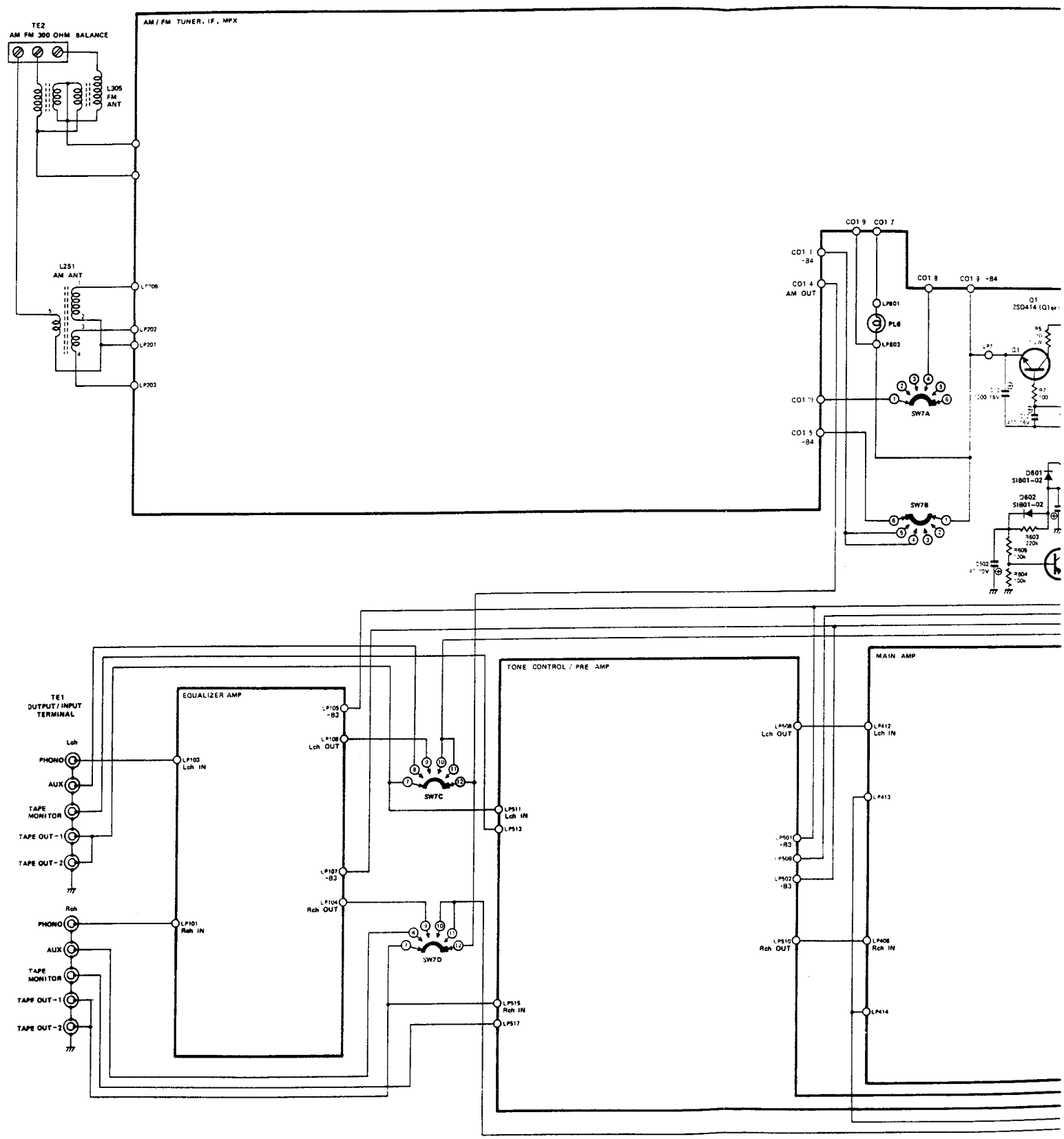

TONE CONTROL PRE AMP P.C BOARD
PLB
POWER
INDICATOR
INDICATOR LAMP HOLDER P.C BOARD
CO2
AM/FM TUNER, IF, MPX P.C BOARD
MAIN AMP P.C BOARD
TE1
OUTPUT INPUT
TERMINAL
EQUALIZER A
L25T
AM ANT
TE2
FM
AM
L305
FM ANT
FH1
FH2
FUS
2A

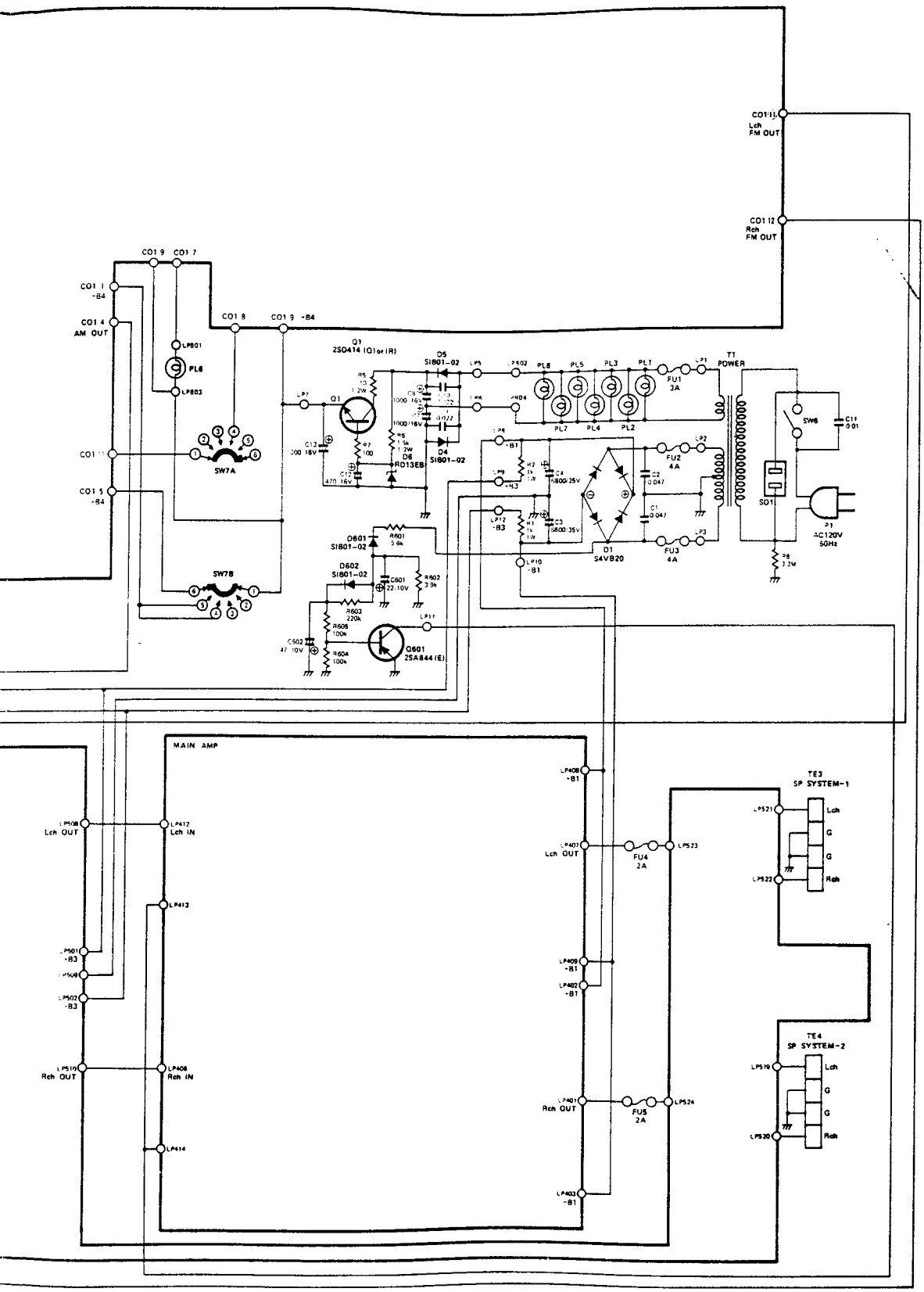

SW7
FUNCTION SELECT
(REAR VIEW)
SW7D
SW7C
SW7A
SW7B
PL8
POWER
INDICATOR
INDICATOR LAMP HOLDER P.C. BOARD
CO2
CO1
MPX P.C. BOARD
EQUALIZER AMP
P.C. BOARD
LP101
TE1
OUTPUT INPUT
TERMINAL
MAIN AMP P.C. BOARD
FU4
2A
FU5
2A
FH1
FH2
J2
REC P.B
RH01

SCHEMATIC DIAGRAM – MODEL 330C
SYSTEM INTERCONNECTION – REGULAR

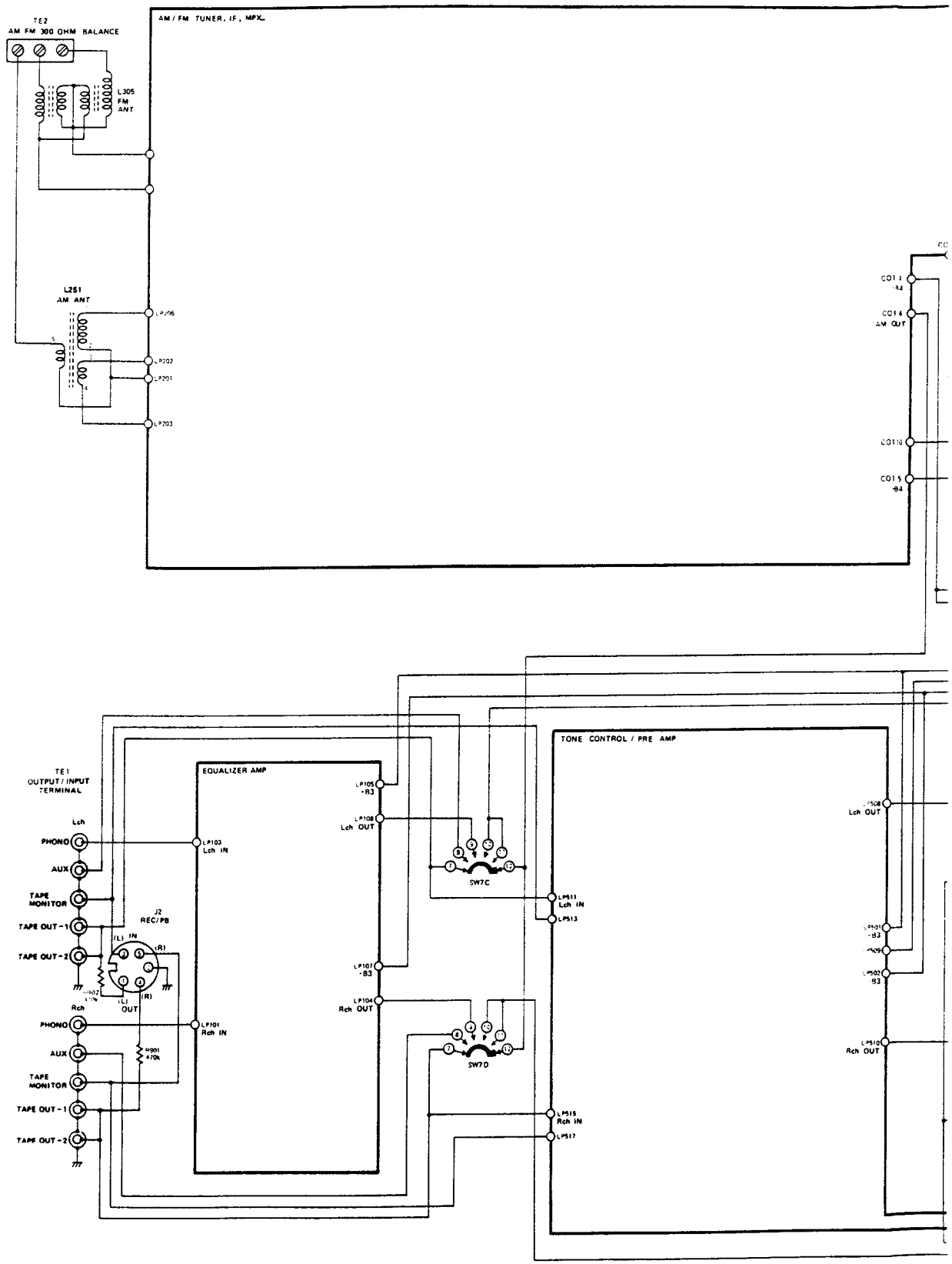


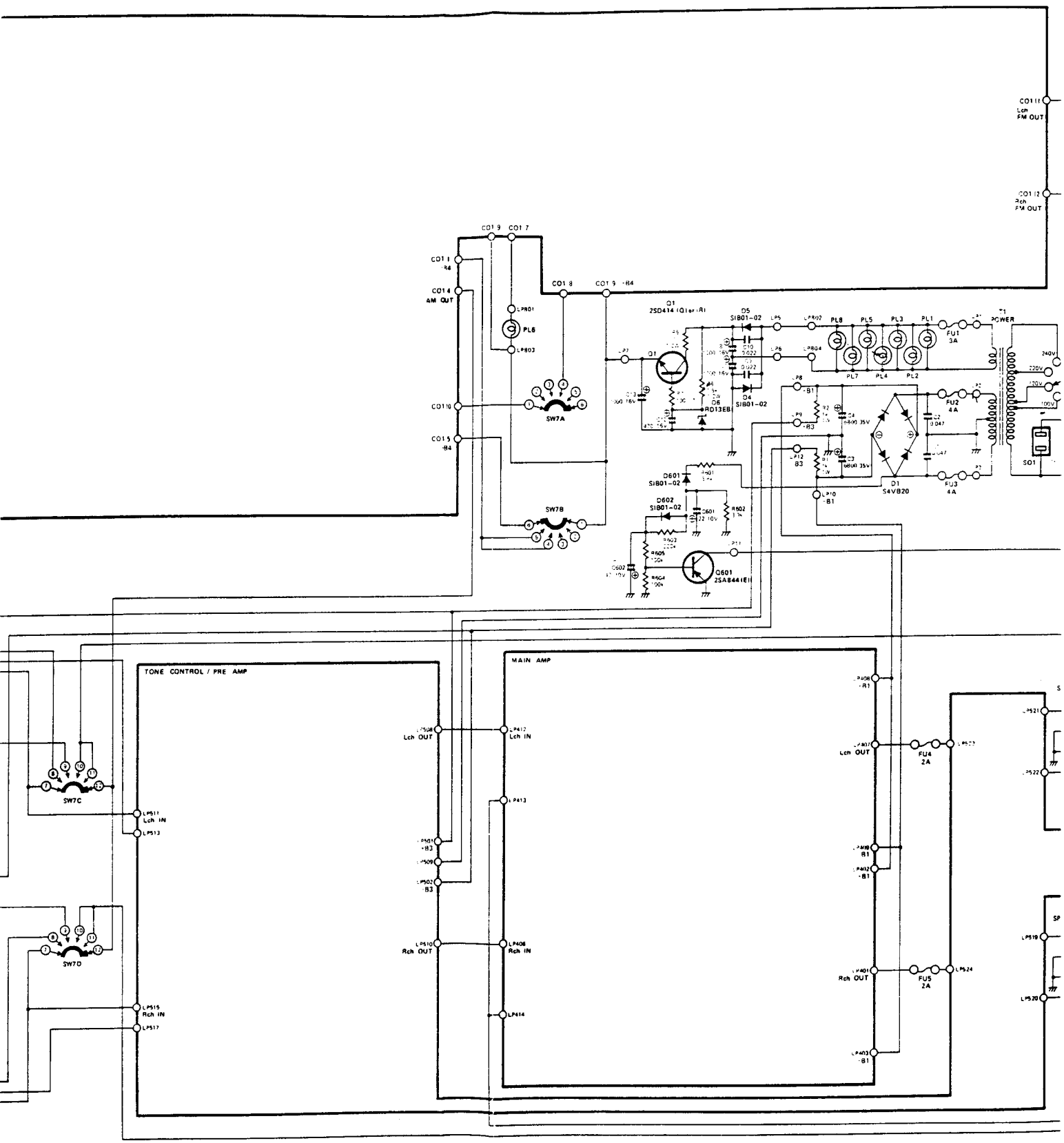


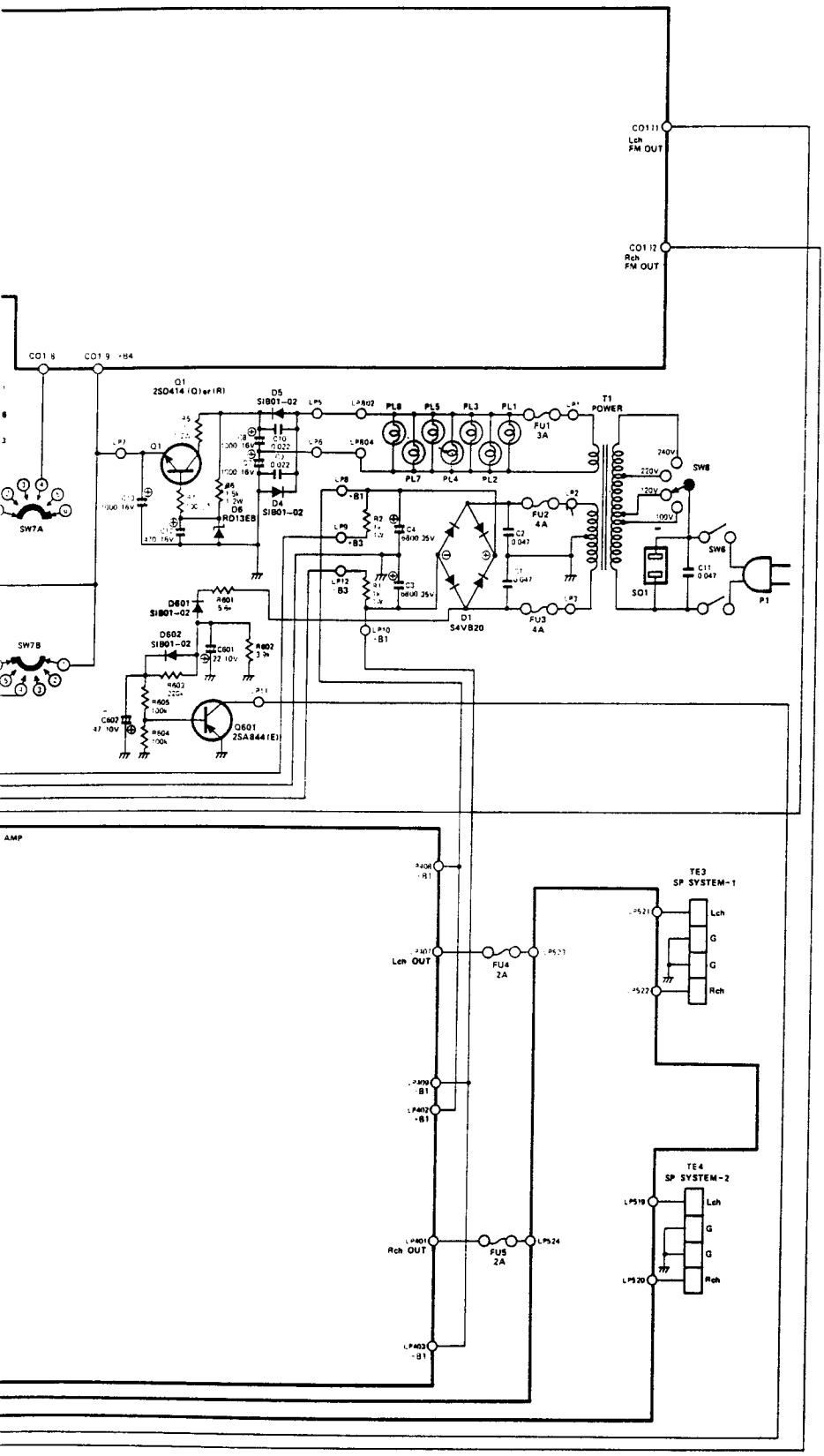

TE2
AM FM 300 OHM BALANCE
L305
FM
ANT
AM / FM TUNER, IF, MPX
L251
AM ANT
LP706
LP202
LP201
LP203
CO1 9
CO1 7
CO1 1
-84
CO1 4
AM OUT
CO1 8
CO1 3
-84
LP801
PL6
LP803
Q1
2SD414 (Q1er)
SW7A
CO1 5
-84
D801
S1801-02
D802
S1801-02
SW7B
R603
220k
R604
100k
TE1
OUTPUT / INPUT
TERMINAL
Lch
PHONO
AUX
TAPE
MONITOR
TAPE OUT-1
TAPE OUT-2
EQUALIZER AMP
LP103
Lch IN
LP105
-83
LP108
Lch OUT
SW7C
LP511
Lch IN
LP513
LP107
-83
LP704
Rch OUT
Rch
PHONO
AUX
TAPE
MONITOR
TAPE OUT-1
TAPE OUT-2
LP101
Rch IN
SW7D
LP515
Rch IN
LP517
TONE CONTROL / PRE AMP
LP508
Lch OUT
LP501
-83
LP509
LP502
-83
LP510
Rch OUT
MAIN AMP
LP412
Lch IN
LP413
LP406
Rch IN
LP414


CO1 11
Lch
FM OUT
CO1 12
Rch
FM OUT
CO1 9
CO1 7
CO1 1
-B4
CO1 4
AM OUT
CO1 8
CO1 9 +B4
LP801
PL6
LP803
CO1 2
CO1 5
-B4
SW7A
SW7B
Q1
2SD414 (Q) or (R)
D5
SI801-02
PL8
PL5
PL3
PL1
FU1
3A
T1
POWER
PL7
PL4
PL2
SW6
C11
0.01
D4
SI801-02
D6
RD13EB
FU2
4A
SO1
P1
AC120V
50Hz
D1
S4VB20
FU3
4A
R8
3.3M
Q601
SI801-02
R601
5.6k
D602
SI801-02
C601
22/10V
R602
3.9k
R603
220k
R606
100k
R604
100k
C602
47/10V
Q601
2SA844 (E)
MAIN AMP
LP508
Lch OUT
LP412
Lch IN
LP413
LP501
-B3
LP502
-B3
LP510
Rch OUT
LP406
Rch IN
LP414
LP408
-B1
LP407
Lch OUT
FU4
2A
LP523
LP409
-B1
LP402
-B1
LP401
Rch OUT
FU5
2A
LP524
LP403
-B1
TE3
SP SYSTEM-1
LP521
Lch
G
G
LP522
Rch
TE4
SP SYSTEM-2
LP519
Lch
G
G
LP520
Rch

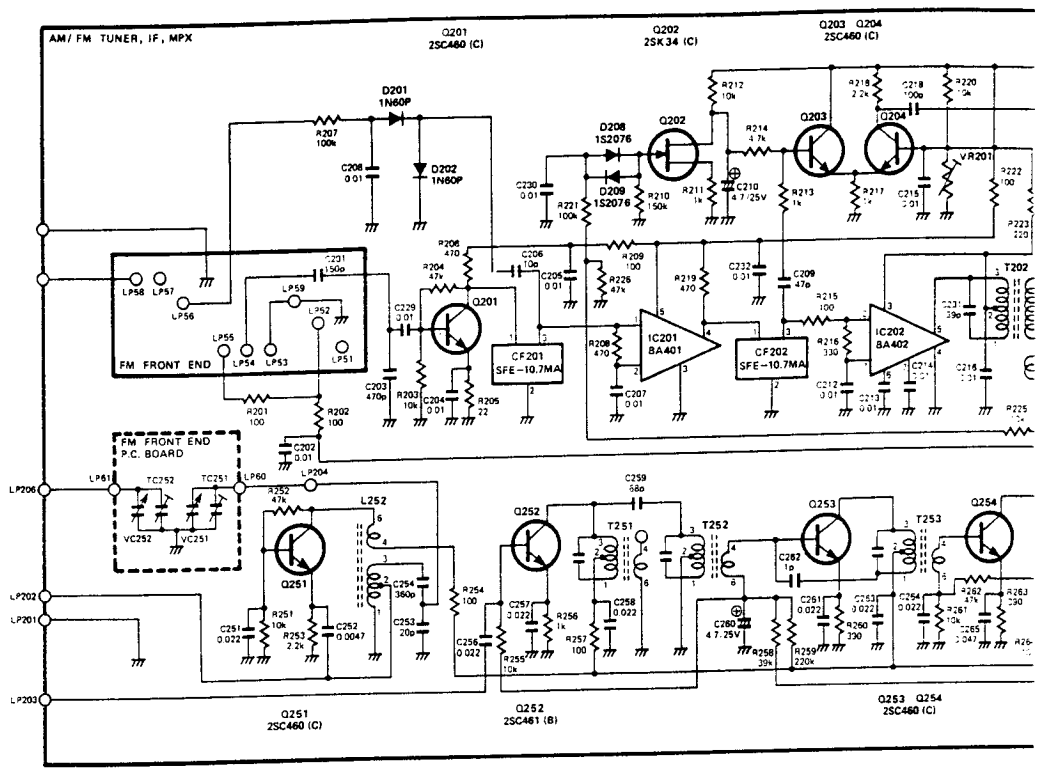
SCHEMATIC DIAGRAM – MODEL 330C
SYSTEM INTERCONNECTION – MULTI

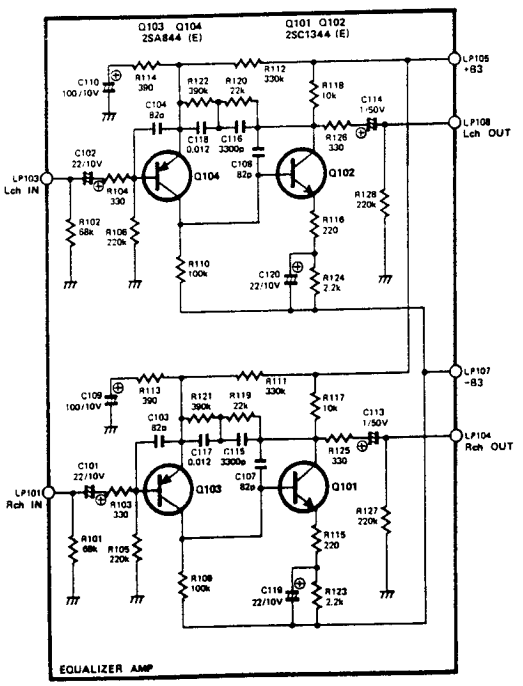


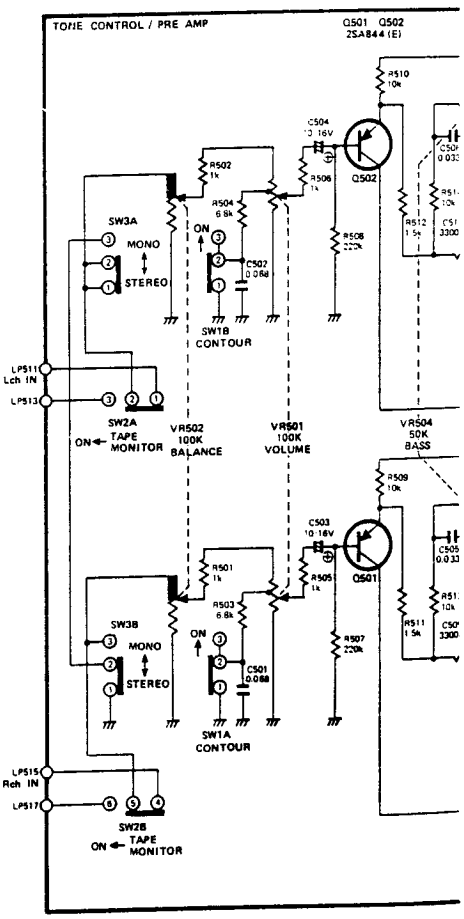

CO11
Lch
FM OUT
CO12
Rch
FM OUT
CO19
CO17
CO1
-B4
CO14
AM OUT
CO18
CO19 -B4
CO10
CO15
-B4
LP801
PL6
LP803
SW7A
SW7B
Q1
2SD414 (Q1 or -R)
D5
SIB01-02
D6
RD13EB
D4
SIB01-02
PL8
PL5
PL3
PL1
PL7
PL4
PL2
FU1
3A
T1
POWER
240V
220V
100V
FU2
4A
FU3
4A
SO1
D1
S4VB20
D601
SIB01-02
D602
SIB01-02
C601
22 10V
R602
1k
R603
220k
R605
100k
R604
100k
C602
Q601
2SA844 (E)
LP10
-B1
LP11
-B3
LP12
-B3
LP9
-R3
LP8
-B1
TONE CONTROL / PRE AMP
MAIN AMP
SW7C
SW7D
LP511
Lch IN
LP513
LP515
Rch IN
LP517
LP508
Lch OUT
LP501
-B3
LP509
LP502
-B3
LP510
Rch OUT
LP412
Lch IN
LP413
LP406
Rch IN
LP414
LP408
-R1
LP407
Lch OUT
LP409
B1
LP402
-B1
LP401
Rch OUT
LP403
-B1
FU4
2A
FU5
2A
LP523
LP524
LP521
LP522
LP519
LP520
SP

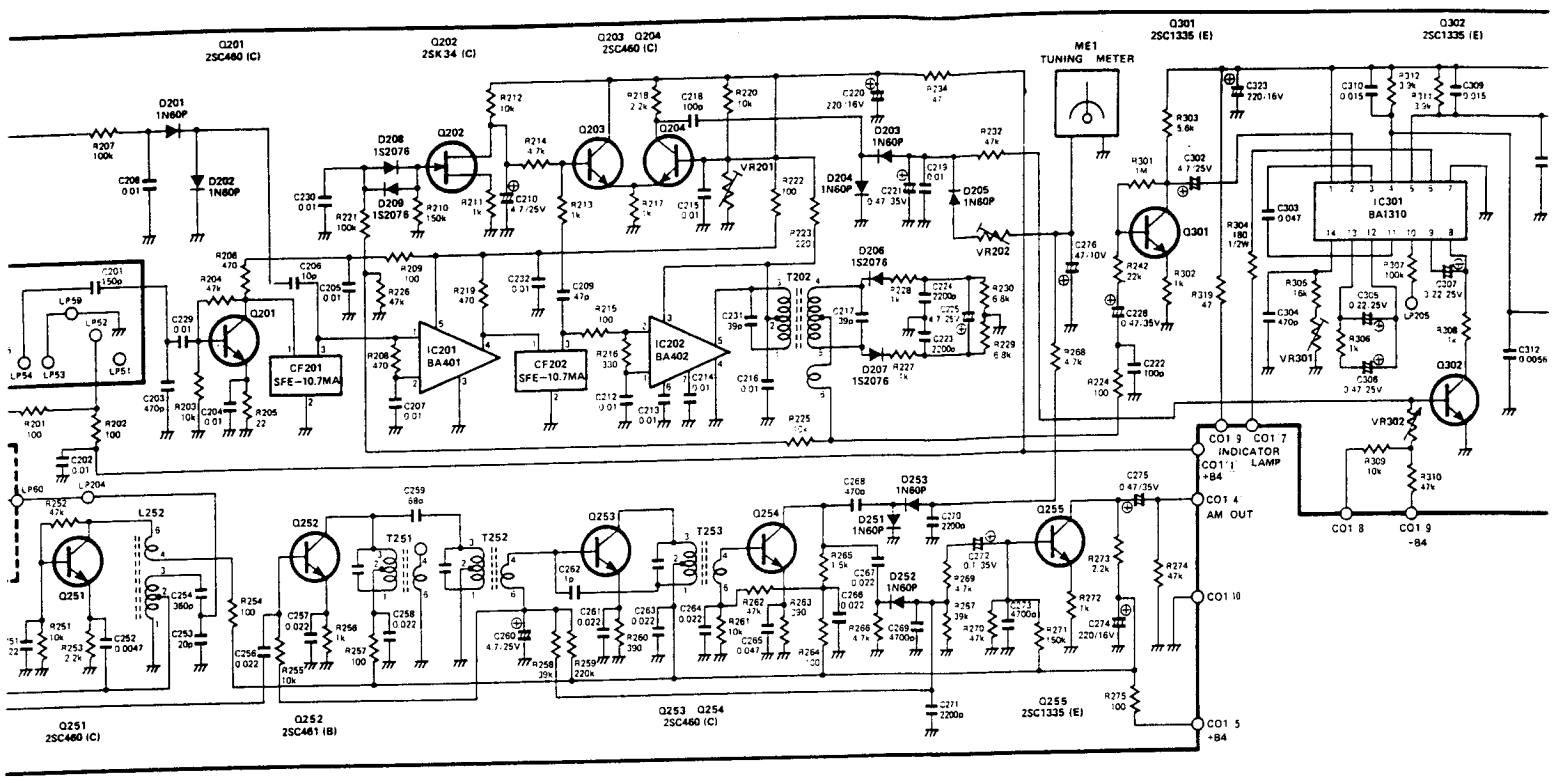

CO11
Lch
FM OUT
CO12
Rch
FM OUT
CO18
CO19
+B4
Q1
2SD414 (Q) or (R)
D5
SIB01-02
T1
POWER
FU1
3A
PL8
PL5
PL3
PL1
PL7
PL4
PL2
240V
220V
120V
100V
SW8
SW7A
SW7B
D4
SIB01-02
D6
RD13EB
FU2
4A
FU3
4A
D1
S4VB20
SO1
P1
D601
SIB01-02
D602
SIB01-02
Q601
2SA844 (E)
AMP
TE3
SP SYSTEM-1
TE4
SP SYSTEM-2
Lch
G
G
Rch
Lch OUT
Rch OUT
FU4
2A
FU5
2A

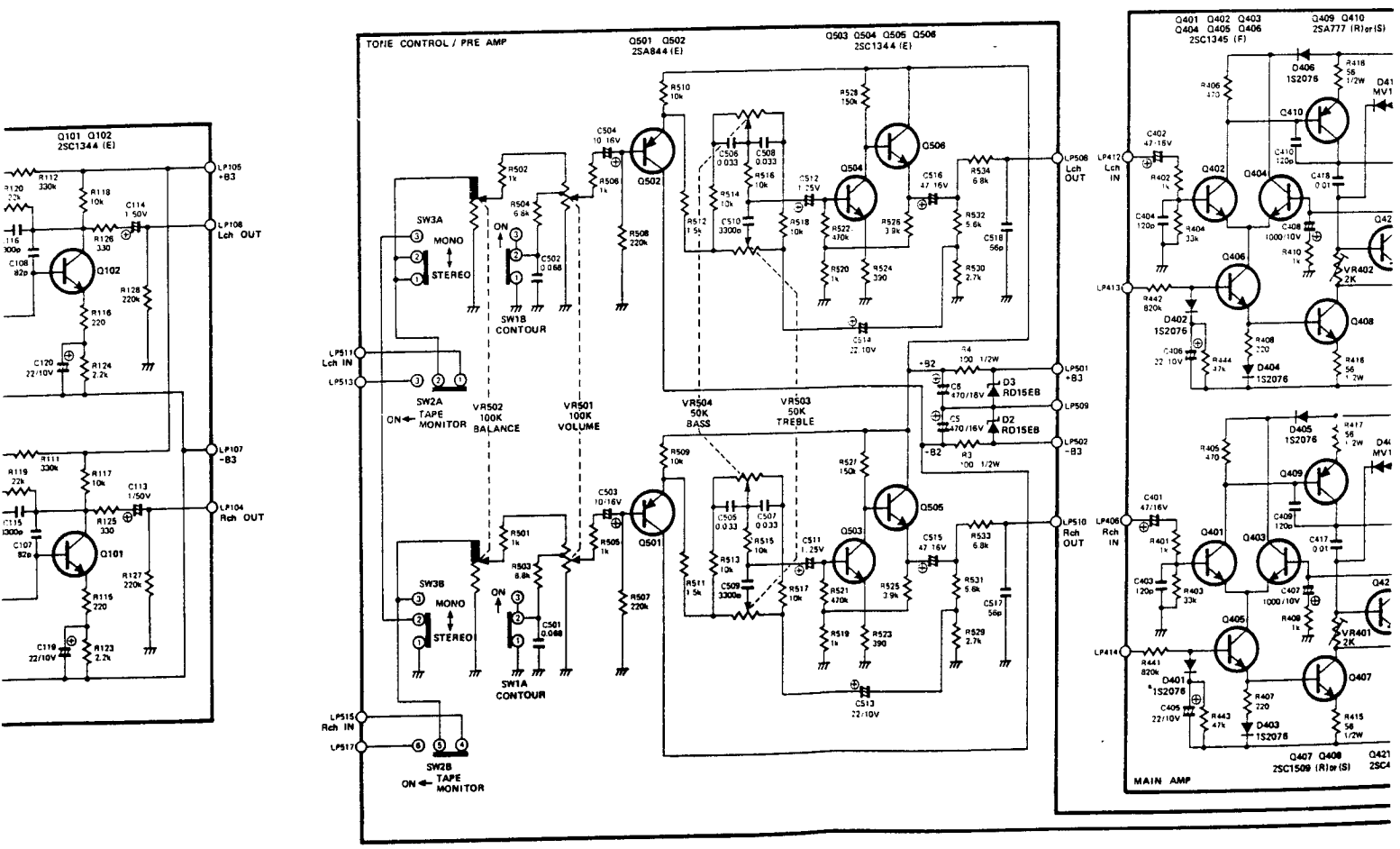
SCHEMATIC DIAGRAM – MODEL 330C
REGULAR

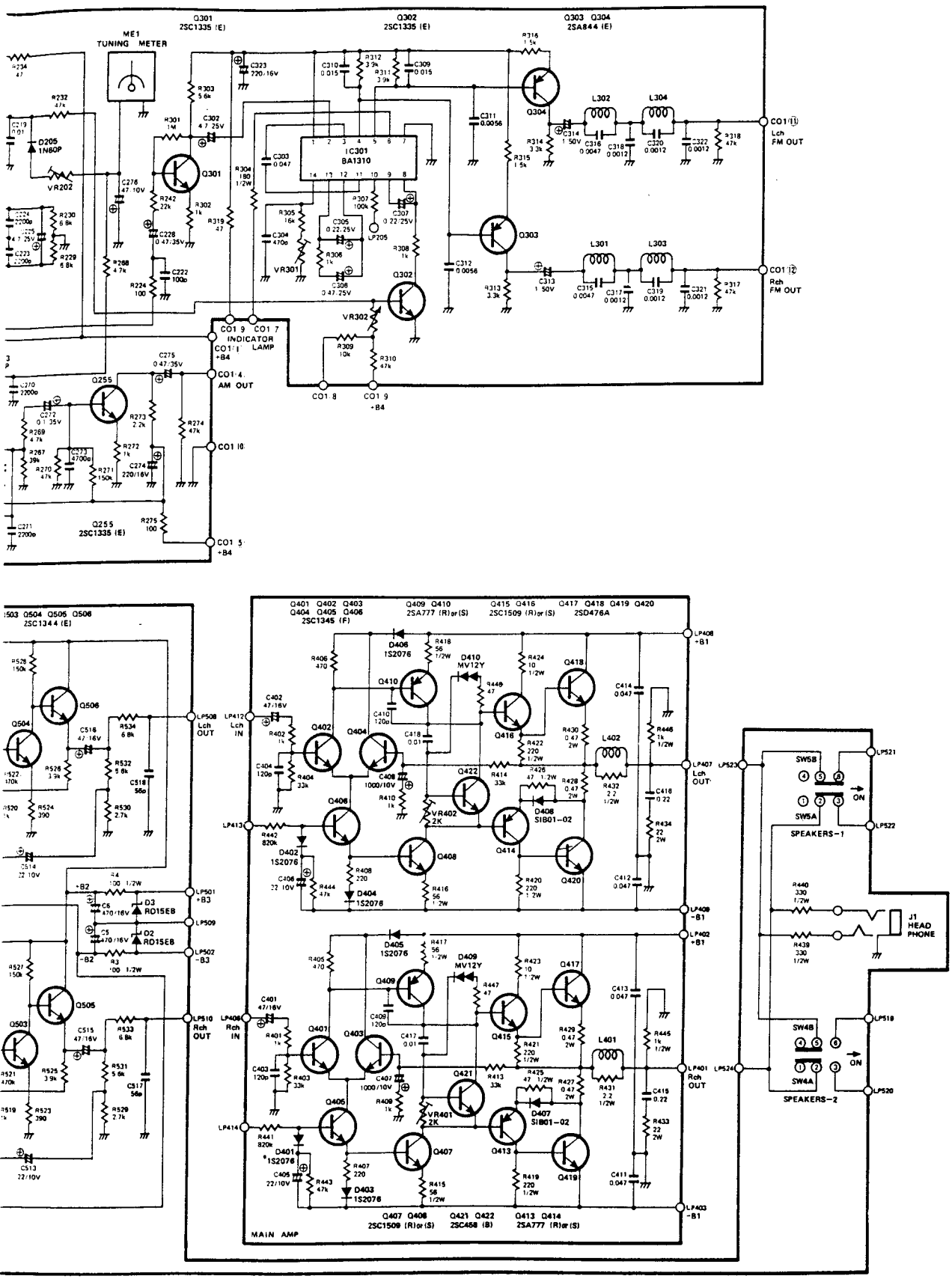




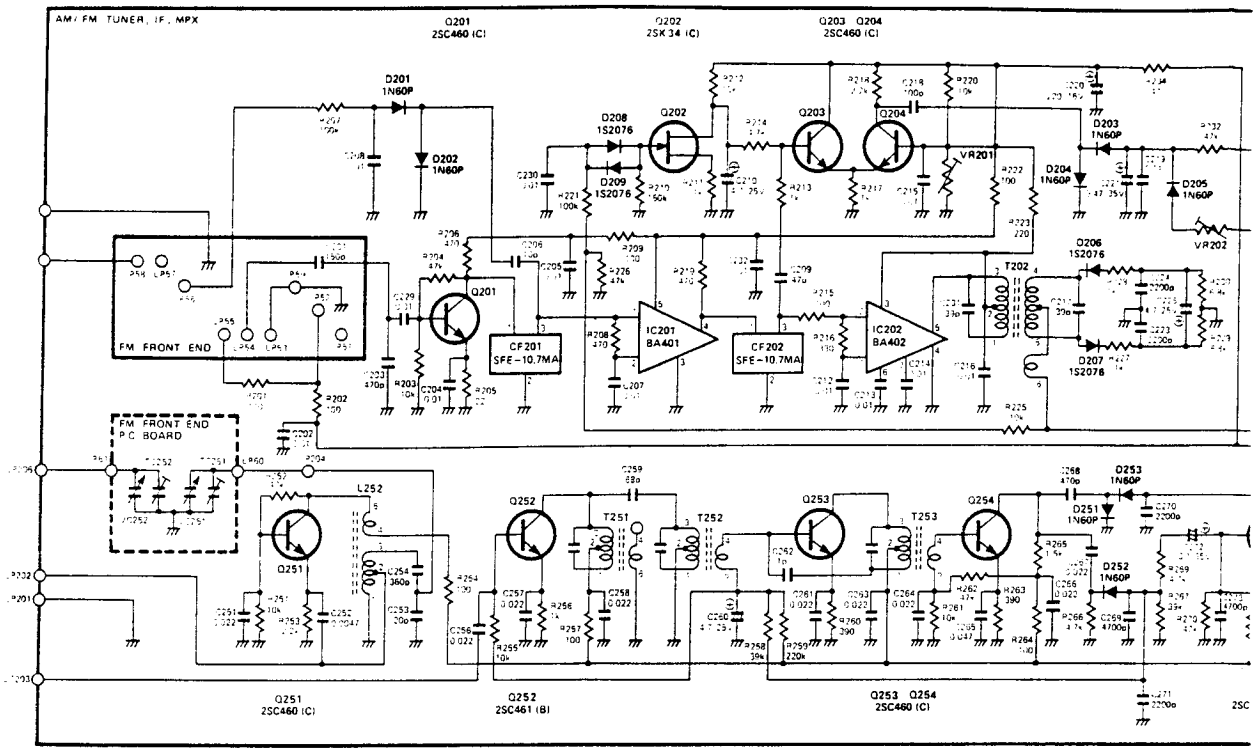


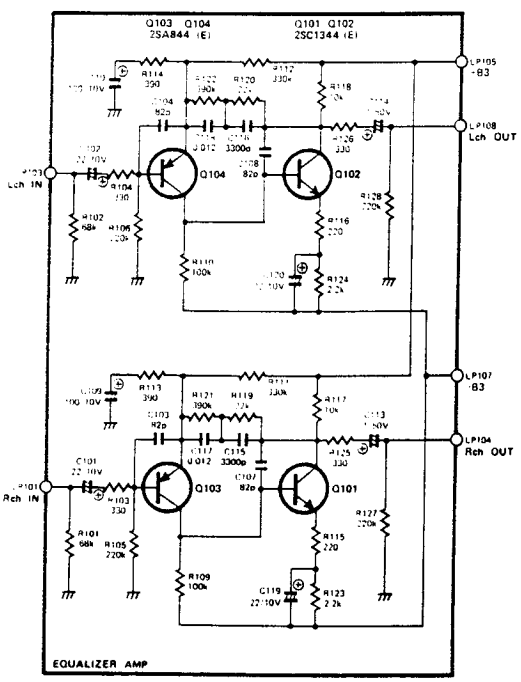

Q201 2SC460 (C)
Q202 2SK34 (C)
Q203 Q204 2SC460 (C)
ME1 TUNING METER
Q301 2SC1335 (E)
Q302 2SC1335 (E)
IC201 BA401
IC202 BA402
IC301 BA1310
CF201 SFE-10.7MA
CF202 SFE-10.7MA
T202
VR201
VR202
VR301
VR302
CO1 9 CO1 7 INDICATOR LAMP
CO1 4 AM OUT
CO1 8
CO1 9 -B4
CO1 10
CO1 5 +B4
Q251 2SC460 (C)
Q252 2SC461 (B)
Q253 Q254 2SC460 (C)
Q255 2SC1335 (E)

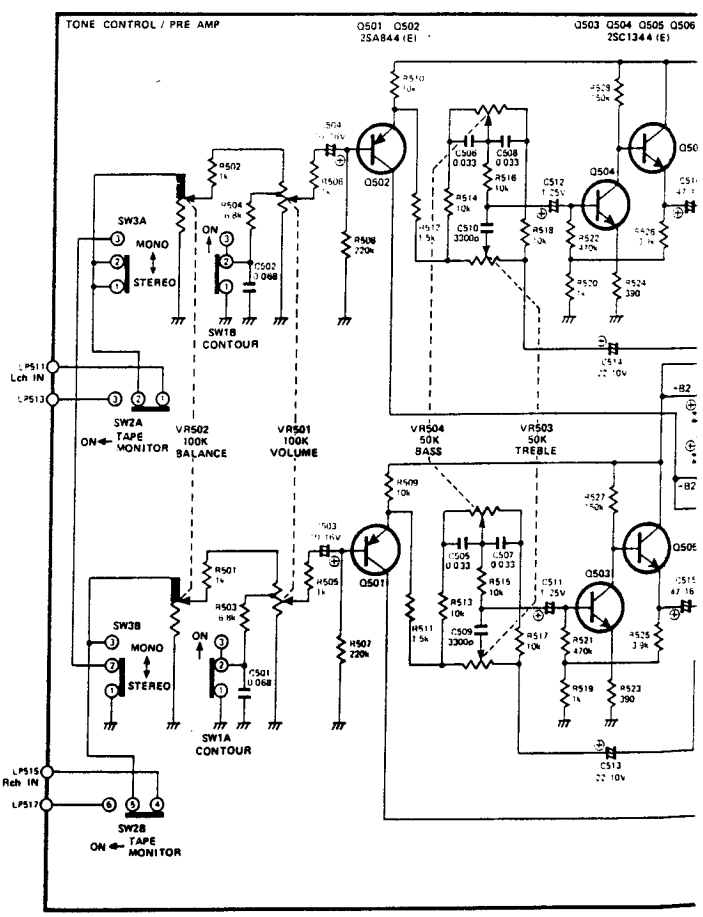

TONE CONTROL / PRE AMP
Q501 Q502 2SA844 (E)
Q503 Q504 Q505 Q506 2SC1344 (E)
Q101 Q102 2SC1344 (E)
Q401 Q402 Q403 Q404 Q405 Q406 2SC1345 (F)
Q409 Q410 2SA777 (R) or (S)
SW3A MONO STEREO
SW3B CONTOUR
SW2A TAPE MONITOR
SW2B TAPE MONITOR
SW1B CONTOUR
SW1A CONTOUR
VR502 100K BALANCE
VR501 100K VOLUME
VR504 50K BASS
VR503 50K TREBLE
LP508 Lch OUT
LP509
LP510 Rch OUT
LP501 +B3
LP502 -B3
LP105 +B3
LP108 Lch OUT
LP107 -B3
LP104 Rch OUT
LP511 Lch IN
LP513
LP515 Rch IN
LP517
LP412 Lch IN
LP413
LP406 Rch IN
LP414
D3 RD15EB
D2 RD15EB
D402 1S2076
D404 1S2076
D405 1S2076
D401 1S2076
D403 1S2076
VR402 2K
VR401 2K
MAIN AMP

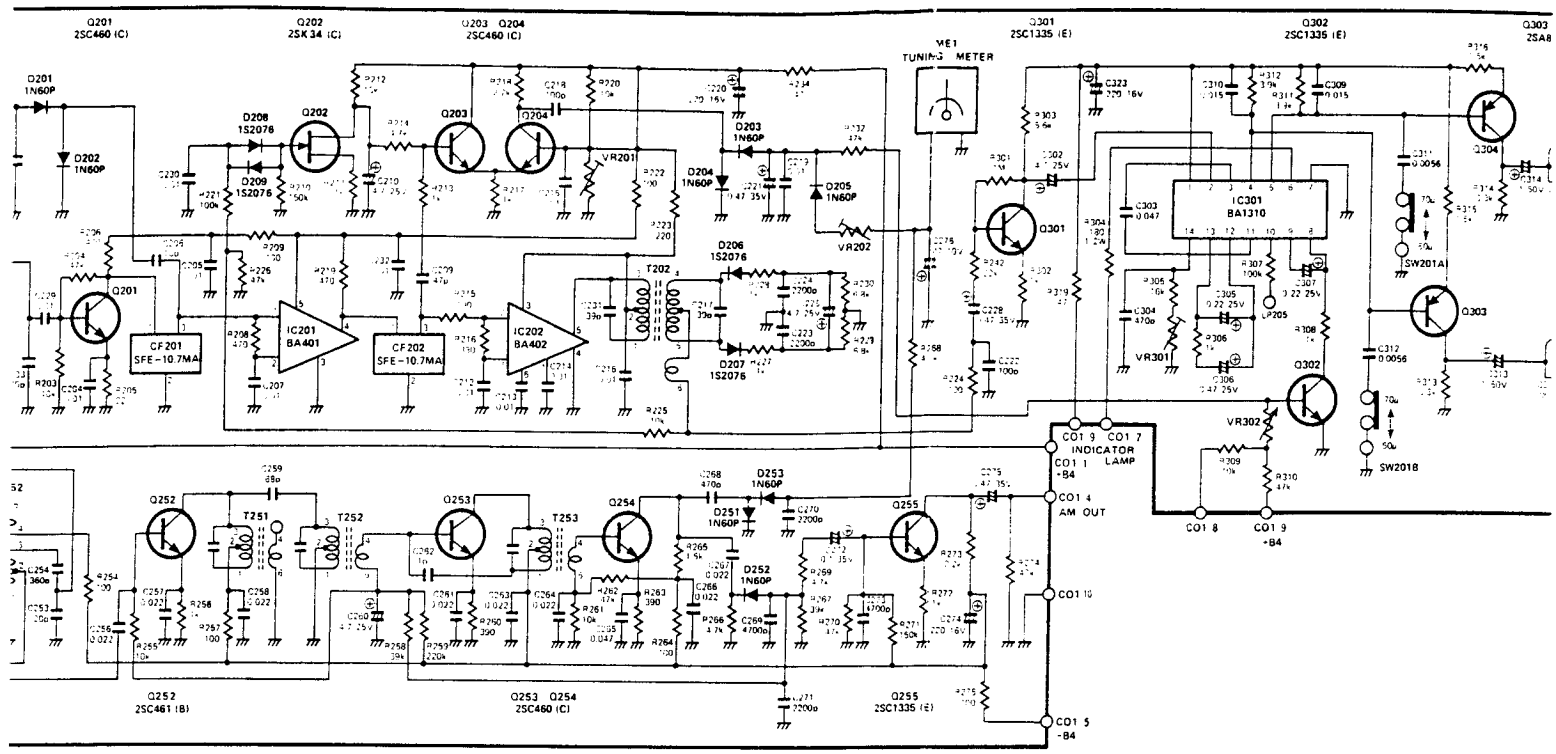

Q301
2SC1335 (E)
Q302
2SC1335 (E)
Q303 Q304
2SA844 (E)
ME1
TUNING METER
IC301
BA1310
L302
L304
L301
L303
Lch
FM OUT
Rch
FM OUT
INDICATOR
LAMP
AM OUT
Q255
2SC1335 (E)

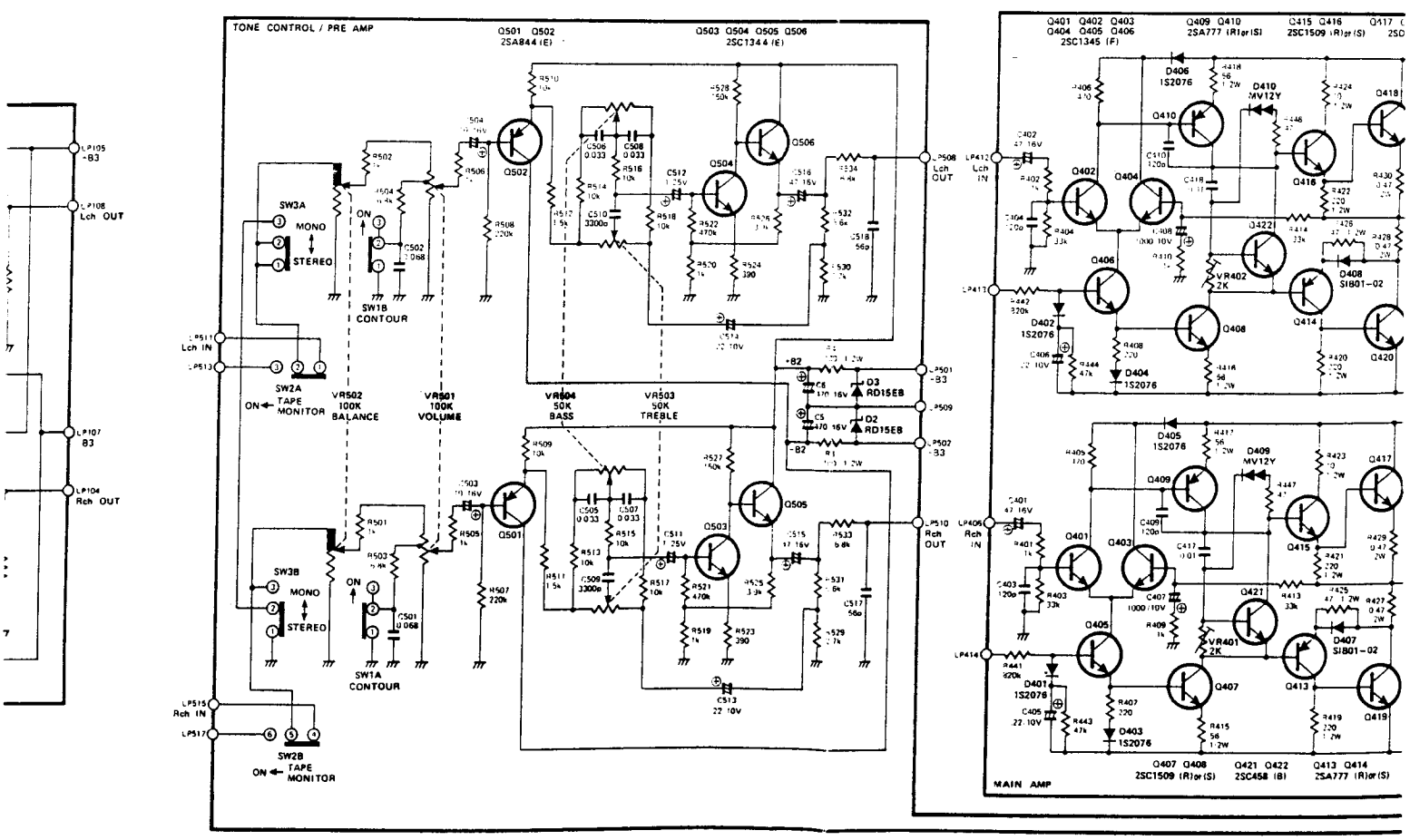
Q401 Q402 Q403
Q404 Q405 Q406
2SC1345 (F)
Q409 Q410
2SA777 (R) or (S)
Q415 Q416
2SC1509 (R) or (S)
Q417 Q418 Q419 Q420
2SD476A
Q501 Q502 Q503 Q504 Q505 Q506
2SC1344 (E)
Lch
OUT
Lch
IN
Rch
OUT
Rch
IN
SW5B
SW5A
SW4B
SW4A
ON
SPEAKERS-1
SPEAKERS-2
J1
HEAD
PHONE
MAIN AMP
Q407 Q408
2SC1509 (R) or (S)
Q421 Q422
2SC458 (B)
Q413 Q414
2SA777 (R) or (S)

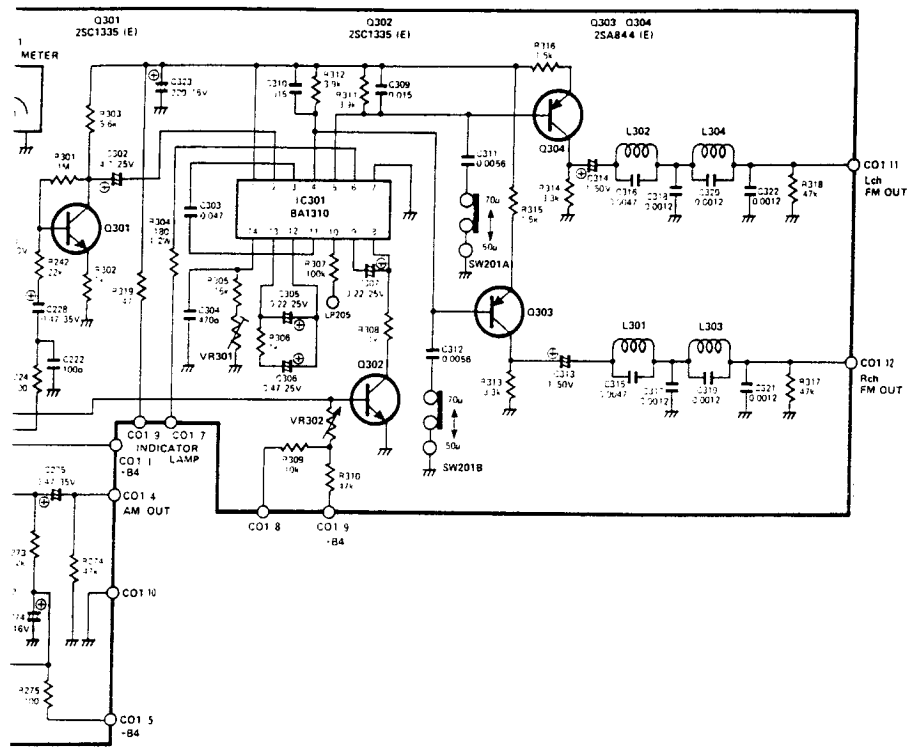

AM / FM TUNER, IF, MPX
Q201 2SC460 (C)
Q202 2SK34 (C)
Q203 Q204 2SC460 (C)
FM FRONT END
FM FRONT END P.C. BOARD
IC201 BA401
IC202 BA402
CF201 SFE-10.7MA
CF202 SFE-10.7MA
Q251 2SC460 (C)
Q252 2SC461 (B)
Q253 Q254 2SC460 (C)

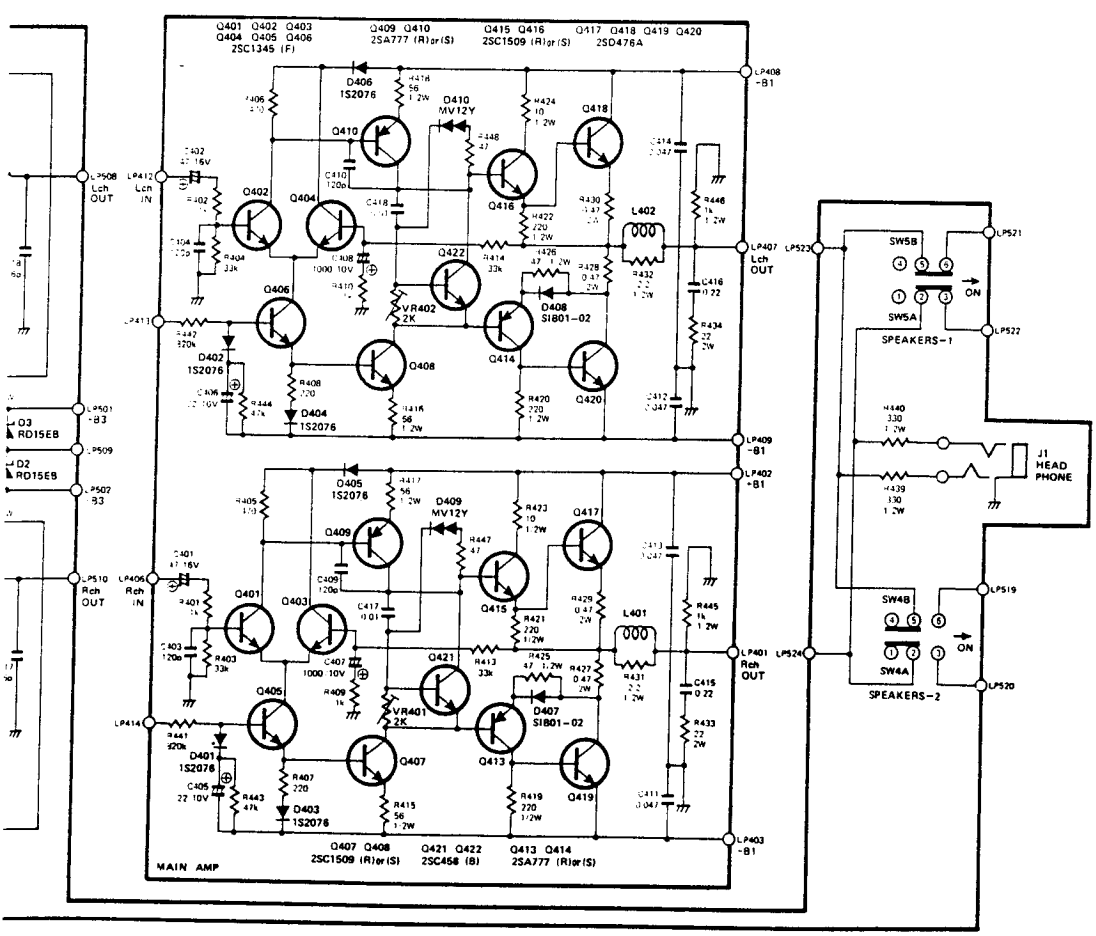

Q103 Q104 2SA844 (E)
Q101 Q102 2SC1344 (E)
Lch IN
Rch IN
Lch OUT
Rch OUT
EQUALIZER AMP


TONE CONTROL / PRE AMP
Q501 Q502 2SA844 (E)
Q503 Q504 Q505 Q506 2SC1344 (E)
SW3A MONO STEREO
SW1B CONTOUR
SW2A TAPE MONITOR
VR502 100K BALANCE
VR501 100K VOLUME
VR504 50K BASS
VR503 50K TREBLE
SW3B MONO STEREO
SW1A CONTOUR
SW2B TAPE MONITOR


Q201 2SC460 (C)
Q202 2SK34 (C)
Q203 Q204 2SC460 (C)
Q301 2SC1335 (E)
Q302 2SC1335 (E)
ME1 TUNING METER
IC201 BA401
IC202 BA402
IC301 BA1310
CF201 SFE-10.7MA
CF202 SFE-10.7MA
SW201A
SW2018
CO1 9 CO1 7 INDICATOR LAMP
CO1 1 +B4
CO1 4 AM OUT
CO1 8
CO1 9 +B4
CO1 10
CO1 5 -B4
Q252 2SC461 (B)
Q253 Q254 2SC460 (C)
Q255 2SC1335 (E)


TONE CONTROL / PRE AMP
Q501 Q502 2SA844 (E)
Q503 Q504 Q505 Q506 2SC1344 (E)
SW3A MONO STEREO
SW1B CONTOUR
SW2A TAPE MONITOR
VR502 100K BALANCE
VR501 100K VOLUME
VR504 50K BASS
VR503 50K TREBLE
SW3B MONO STEREO
SW1A CONTOUR
SW2B TAPE MONITOR
LP105 -B3
LP108 Lch OUT
LP107 B3
LP104 Rch OUT
LP511 Lch IN
LP513
LP515 Rch IN
LP517
LP508 Lch OUT
LP509
LP502 -B3
LP510 Rch OUT
Q401 Q402 Q403 Q404 Q405 Q406 2SC1345 (F)
Q409 Q410 2SA777 (R) or (S)
Q415 Q416 2SC1509 (R) or (S)
LP412 Lch IN
LP413
LP406 Rch IN
LP414
D406 1S2076
D410 MV12Y
D402 1S2076
D404 1S2076
D408 SI801-02
D405 1S2076
D409 MV12Y
D401 1S2076
D403 1S2076
D407 SI801-02
Q407 Q408 2SC1509 (R) or (S)
Q421 Q422 2SC458 (B)
Q413 Q414 2SA777 (R) or (S)
MAIN AMP


Q301
2SC1335 (E)
Q302
2SC1335 (E)
Q303 Q304
2SA844 (E)
METER
IC301
BA1310
Q301
Q302
Q303
Q304
L301
L302
L303
L304
SW201A
SW201B
VR301
VR302
LP205
CO1 11
Lch
FM OUT
CO1 12
Rch
FM OUT
CO1 9 CO1 7
INDICATOR
LAMP
CO1 1
-B4
CO1 4
AM OUT
CO1 8
CO1 9
-B4
CO1 10
CO1 5
-B4


Q401 Q402 Q403
Q404 Q405 Q406
2SC1345 (F)
Q409 Q410
2SA777 (R) or (S)
Q415 Q416
2SC1509 (R) or (S)
Q417 Q418 Q419 Q420
2SD476A
D406
1S2076
D410
MV12Y
D405
1S2076
D409
MV12Y
D402
1S2076
D404
1S2076
D401
1S2076
D403
1S2076
D408
SI801-02
D407
SI801-02
VR402
2K
VR401
2K
LP508
Lch
OUT
LP412
Lch
IN
LP510
Rch
OUT
LP406
Rch
IN
LP408
-B1
LP407
Lch
OUT
LP409
-B1
LP402
+B1
LP401
Rch
OUT
LP403
-B1
LP523
LP524
SW5B
SW5A
SW4B
SW4A
ON
LP521
LP522
LP519
LP520
SPEAKERS-1
SPEAKERS-2
J1
HEAD
PHONE
MAIN AMP
Q407 Q408
2SC1509 (R) or (S)
Q421 Q422
2SC458 (B)
Q413 Q414
2SA777 (R) or (S)

SCHEMATIC NOTES AND VOLTAGES

NOTES:

1. All resistors are 1/4 watt, ±5%, unless noted otherwise. Values are in ohms. K = 1000 M = 1000K
2. All capacitances values are in MF unless noted otherwise. PF = MMF
3. Function selector switch (SW7) is in AM position.

VOLTAGE CHART

AC120V, Volume Control at Minimum, Tone Control at Mechanical Center, No Signal, Chassis Ground

+B1	+28.50V
+B2	+14.73V
+B3	+15.16V
+B4	+12.50V
−B1	−28.50V
−B2	−14.21V
−B3	−14.48V

FM POSITION

	base	emitter	collector
Q201	+0.79V	+0.12V	+6.19V
Q202	0V	+6.06V	+0.40V
	(GATE)	(DRAIN)	(SOURCE)
Q203	+5.91V	+5.25V	+10.39V
Q204	+5.88V	+5.23V	+8.54V
Q301	+1.72V	+1.09V	+4.80V
Q302	+0.64V	0V	+0.009V
Q303,Q304	+8.02V	+8.66V	+4.82V
	+12.25V	+11.66V	+17.35V
Q601	−0.56V	0V	−36.65V
Q101,102	−10.36V	−11.01V	+0.91V
Q103,104	+0.01V	+0.55V	−10.36V
Q501,502	+0.51V	+1.13V	−14.21V
Q503,504	+0.59V	+0.03V	+3.89V
Q505,506	+3.88V	+3.28V	+14.73V
Q401,402	−0.05V	−0.63V	+27.12V
Q403,404	−0.05V	−0.63V	+27.12V
Q405,406	−26.55V	−27.20V	−0.63V
Q407,408	−27.21V	−27.75V	−0.71V
Q409,410	+27.21V	+27.75V	+1.20V
Q413,414	−0.71V	−0.13V	−27.77V
Q415,416	+1.21V	+0.62V	+28.40V
Q417,418	+0.62V	+0.02V	+28.40V
Q419,420	−27.89V	−28.55V	0V
Q421,422	0V	−0.70V	+1.21V

AM POSITION

	base	emitter	collector
Q251	+1.85V	+1.31V	+10.86V
Q252	+1.05V	+0.55V	+10.89V
Q253	+1.15V	+0.48V	+10.93V
Q254	+1.68V	+1.02V	+6.85V
Q255	+2.46V	+1.83V	+6.96V

IC 201

1. +1.36V
2. +1.36V
3. 0V
4. +8.56V
5. +9.24V

IC 202

1. +2.03V
2. +2.03V
3. +8.40V
4. 0V
5. +8.12V
6. +2.04V
7. +2.03

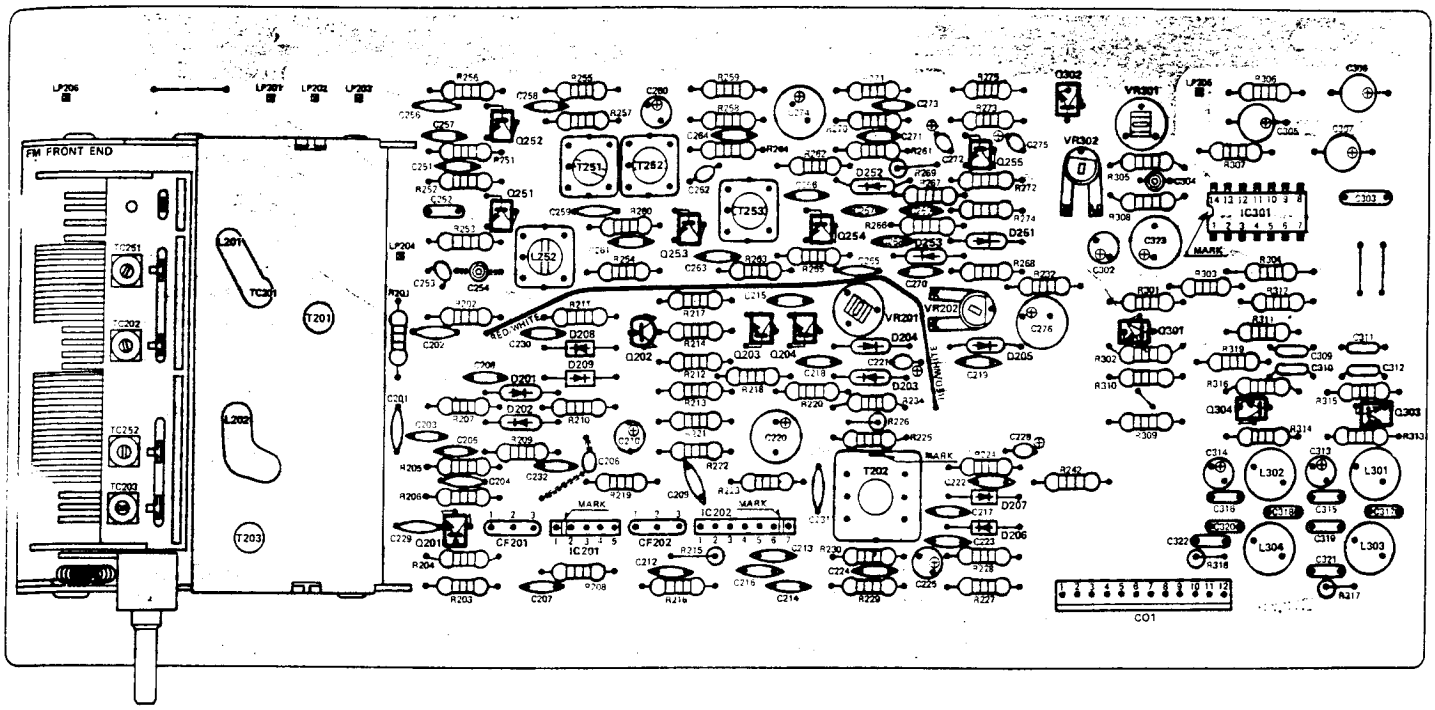
IC 301

1. +10.84V
2. +3.76V
3. +5.05V
4. +8.02V
5. +8.03V
6. +11.66V
7. 0V
8. +0.11V
9. +12.40V
10. +1.65V
11. +2.25V
12. +2.45V
13. +2.46V
14. +2.97V

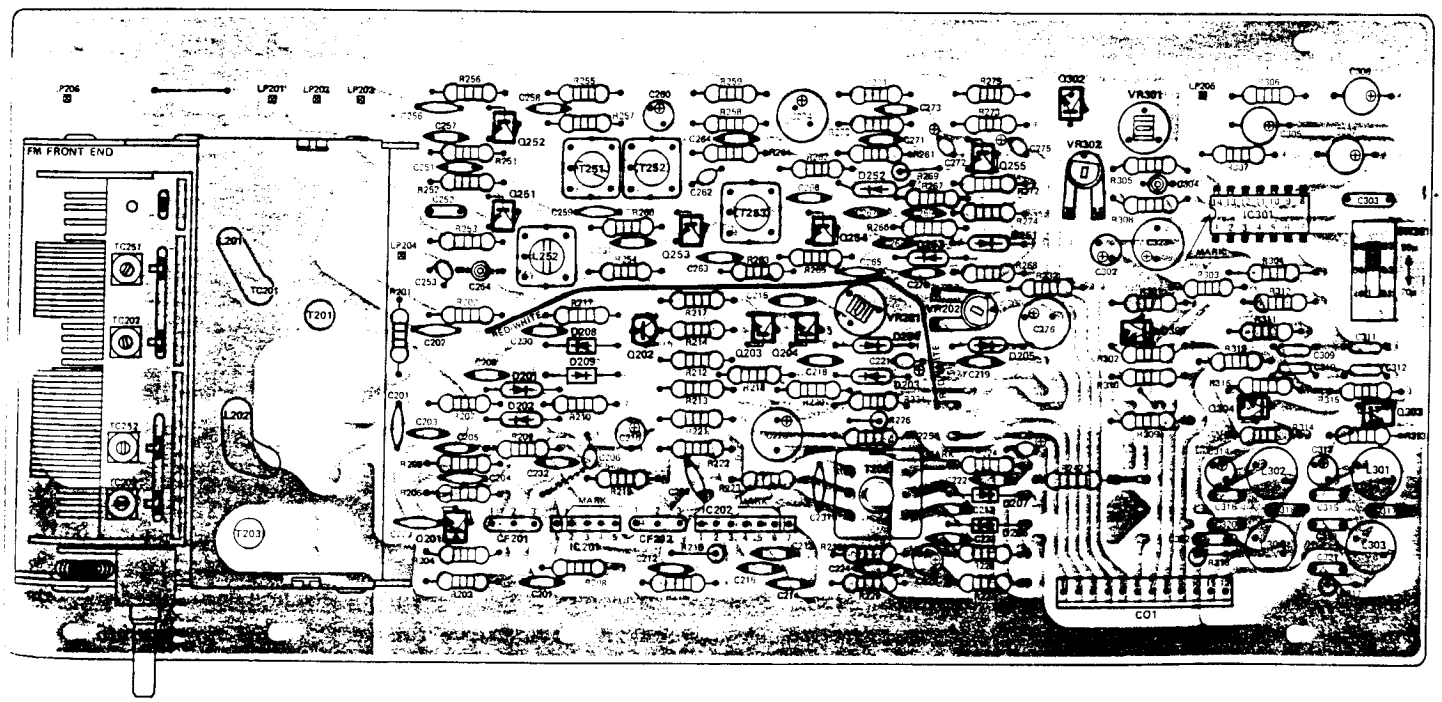
AM/FM TUNER, IF, MPX, PC BOARD

CIRCUIT REF NO.	H/K PART NO.	DESCRIPTION
	00132761	PC Bd Assy, AM/FM Tuner, IF, MPX
RESISTOR		
VR201	23531305	Variable, 22K
VR202	23530559	Variable, 10K
VR301	23530554	Variable, 4.7K
VR302	23532750	Variable, 250K
CAPACITOR		
CF201, 202	12030549*	Filter, Ceramic, SFE-10.7MA
TRANSISTOR		
Q201	43029472*	2SC460(C), FM IF Amp
Q202	43031311*	2SK34(C), F.E.T. Center Zero Research
Q203, 204	43029472*	2SC460(C), Differential Amp
Q251, 253, 254	43029472*	2SC460(C), AM Osc, AM IF Amp
Q252	43029471*	2SC461(B), AM Mix
Q255	43030569*	2SC1335(E), AM IF Amp
Q301, 302	43030569*	2SC1335(E) MPX Amp, Mono-Stereo Switching
Q303, 304	43031312*	2SA844(E), MPX Output Amp
INTEGRATED CIRCUIT		
IC201	43131313*	BA401, FM IF Amp
IC202	43131314*	BA402, FM IF Amp
IC301	43128071*	BA1310, MPX
DIODE		
D201, 202, 203	41029290*	1N60P
204, 205, 251, 252, 253	41030552*	1S2076
D206, 207, 208 209	41030552*	1S2076
INDUCTOR		
L252	12031316	AM Oscillator
L301, 302, 303 304	12031317	19 kHz, 39 kHz Trap (15MH)
TRANSFORMER		
T202	11031318	Discriminator
T251, 252	11030556	AM IF
T253	11030557	AM IF
MISCELLANEOUS		
C01	65432751	Connector, 12 Pin

REGULAR

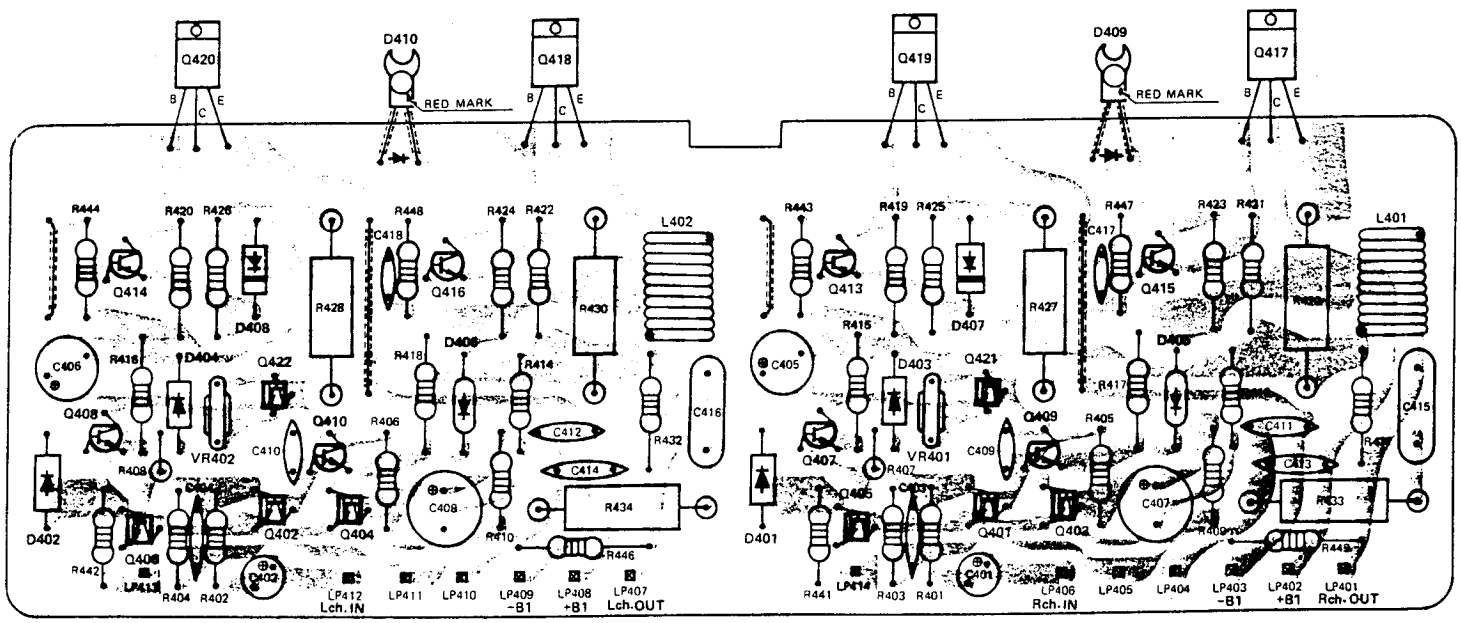


MULTI



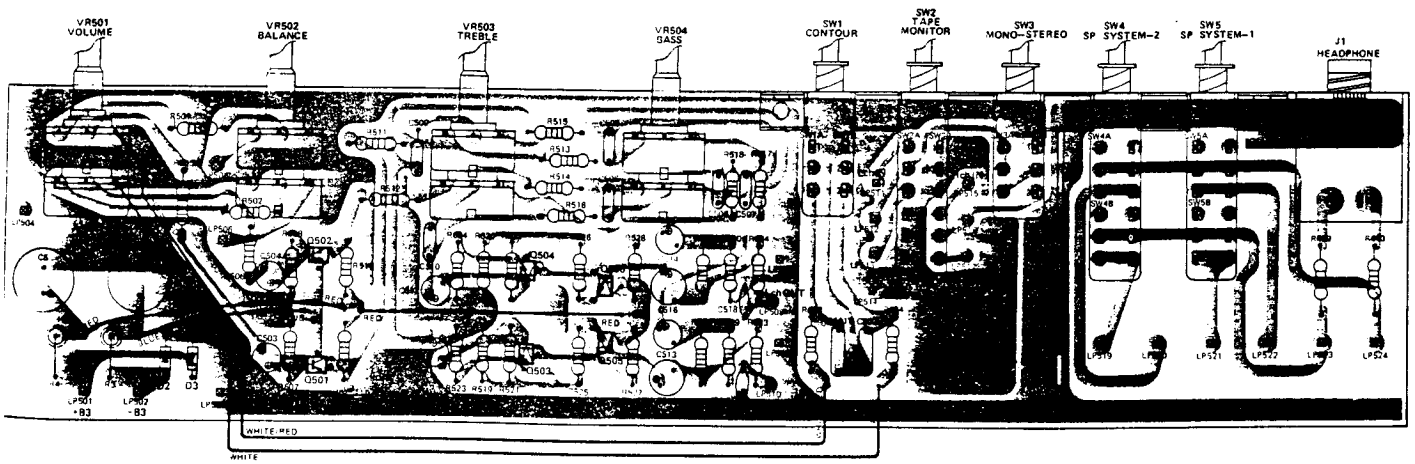
MAIN AMP
PC BOARD

CIRCUIT REF NO.	H/K PART NO.	DESCRIPTION
	00132762	PC Bd Assy, Main Amp
RESISTOR		
VR401, 402	23532752	Variable, 2K
TRANSISTOR		
Q401, 402, 403 404	43029483*	2SC1345(F), Differential Amp
Q405, 406	43029483*	2SC1345(F), Current Regulator
Q407, 408	43029484*	2SC1509(R) or (S), Current Regulator
Q409, 410	43029485*	2SA777(R) or (S), Driver
Q413, 414	43029485*	2SA777(R) or (S), Complement
Q415, 416	43029484*	2SC1509(R) or (S), Complement
Q417, 418, 419 420	43032753	2SD476A, Power Amp
Q421, 422	43027379*	2SC458(B), Bias Stabilization
DIODE		
D401, 402, 403 404, 405, 406	41030552	1S2076
D407, 408	41631295	SIB01-02
D409, 410	41631340	Varistor, MV12Y



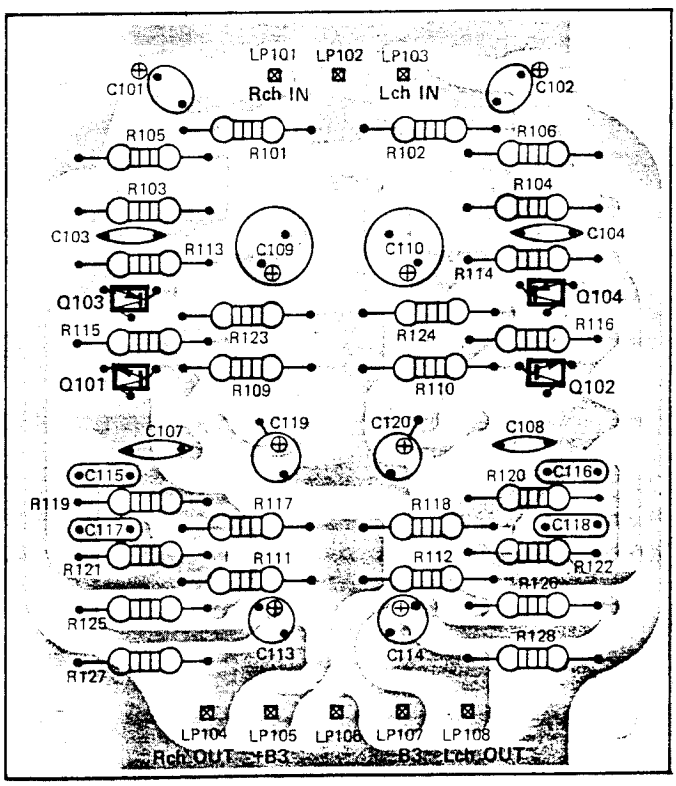
TONE CONTROL/PRE AMP
PC BOARD

CIRCUIT REF NO.	H/K PART NO.	DESCRIPTION
	00132763	PC Bd Assy, Tone Control Pre Amp
RESISTOR		
VR501	22032754	Variable, 100K, Volume Control
VR502	22032755	Variable, 100K, Balance Control
VR503	22032756	Variable, 50K, Treble Control
VR504	22032756	Variable, 50K, Bass Control
TRANSISTOR		
Q501, 502	43031312*	2SA844(E), Pre-Amp
Q503, 504, 505	43028535*	2SC1344(E), Pre-Amp
505		
DIODE		
D2, 3	42032757	Zener, RD15EB
MISCELLANEOUS		
SW1, 2, 3, 4, 5	25032758	Pushbutton, Switch, Contour, Tape Monitor, Mono-Stereo, Speakers-2 and Speakers-1



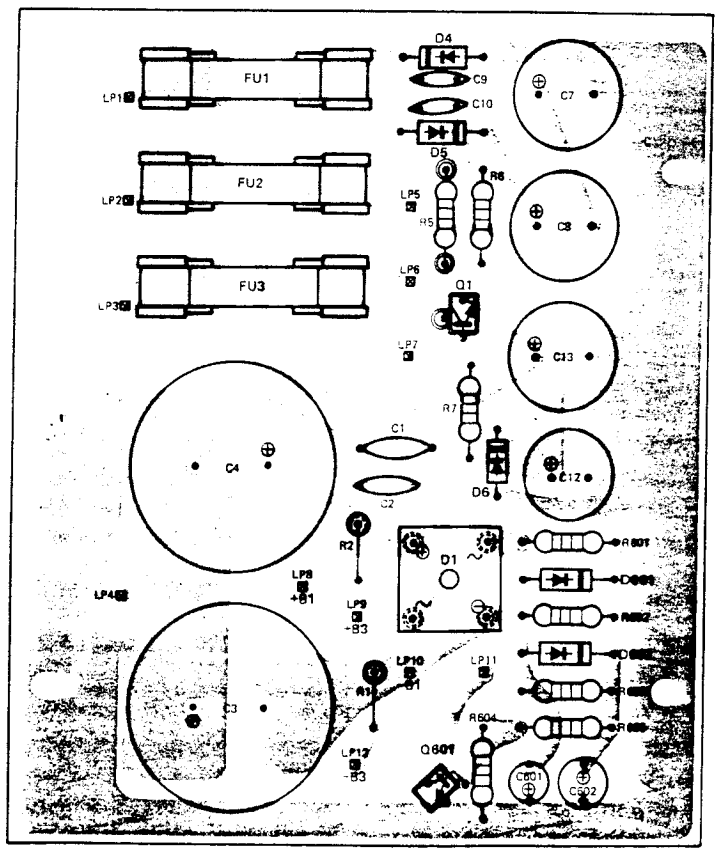
EQUALIZER AMP
PC BOARD

CIRCUIT REF NO.	H/K PART NO.	DESCRIPTION
	00132764	PC Bd Assy, Equalizer Amp
CAPACITOR, LYTIC		
C109, 110	31831270	100MF, +50-10%, 10V
TRANSISTOR		
Q101, 102	43028535*	2SC1344(E), Equalizer Amp
Q103, 104	43031312*	2SA844(E), Equalizer Amp



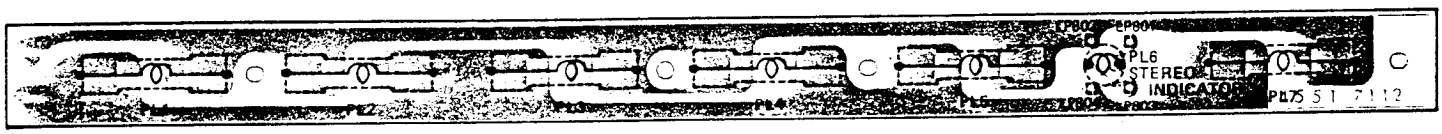
RECTIFIER PC BOARD

CIRCUIT REF NO.	H/K PART NO.	DESCRIPTION
	00132765	PC Bd Assy, Rectifier
CAPACITOR, LYTIC		
C3, 4	31831464	6800MF, +50-10%, 35v
C7, 8, 13	31831472	1000MF, +50-10%, 16V
C12	31828611	470MF, +50-10%, 16V
TRANSISTOR		
Q1	43032759	2SD414(Q) or (R), Voltage Rectifier
Q601	43031312*	2SA844(E), Voltage Rectifier
DIODE		
D1	42132159	S4VB20, Bridge, Silicone Rectifier
D4, 5	41631295*	SIB01-02
D6	42032760	Zener, RD13EB
D601, 602	41631295*	SIB01-02
MISCELLANEOUS		
FU1	45031336*	Fuse, 3A
FU2, 3	45031462*	Fuse, 4A

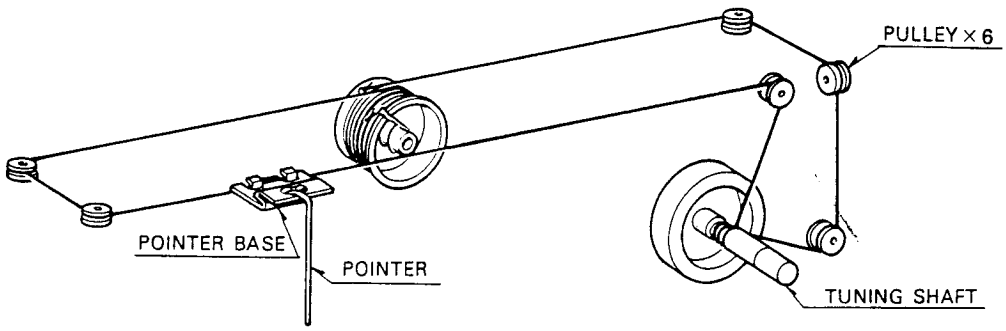


INDICATOR LAMP HOLDER
PC BOARD
VIEW FROM CIRCUIT SIDE

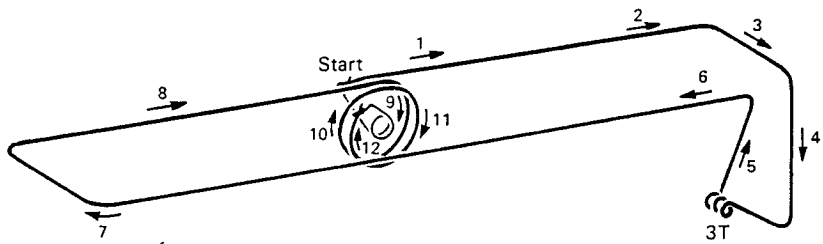
CIRCUIT REF NO.	H/K PART NO.	DESCRIPTION
	00131360	PC Bd Assy, Indicator Lamp Holder
PL1, 2, 3, 4, 5, 7	46532169*	Dial Illuminator Lamp, 8V 300MA
PL6	46531326*	Stereo Indicator Lamp, 6.3V 40MA

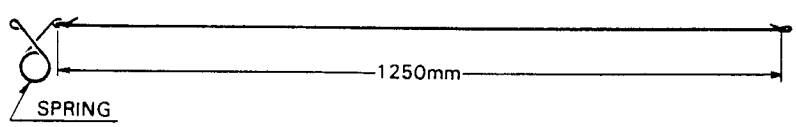


DIAL CORD STRINGING



Start stringing with Variable Capacitor in closed position.





REF DES.	H/K PART NO.	DESCRIPTION
CABINETRY		
	00232744	Front Panel Assy
	60132745	Cabinet Top
	62031373	Leg, Unit
	60132746	Front Side Panel
	63231376	Knob, Tone Control, Function Selector
	63231377	Pushbutton, Control/Mode
	63232747	Knob, Tuning
	63231378	Pushbutton, Power
	00228712	Antenna Holder, AM Ferrite Bar
MISCELLANEOUS		
	00232748	Tuning Shaft Assy
	60431387	Dial Drum, (Tuning Cap.)
	60431388	Pulley, Dial Cord
	00232749	Dial Pointer Assy
	00132761	AM/FM Tuner, IF and MPX PC Bd Assy
	00132762	Main Amp PC Bd Assy
	00132763	Tone Control/Pre-Amp PC Bd Assy
	00132764	Equalizer Amp PC Bd Assy
	00132765	Rectifier PC Bd Assy
	00131360	Indicator Lamp Holder PC Bd Assy
L305	12031333	Coil, FM Antenna
L251	20531334	Antenna, AM Ferrite Bar
T1	10132766	Power Transformer
SW6	25032117	Push Switch, Power
S01	65431485	AC Socket
FH1, 2	65429516	Fuse Holder (Fuses FU4, 5)
TE1	65431482	Output/Input Terminal
TE2	65129518	Terminal, AM/FM External Antenna
TE3, 4	65431366	Terminal, Speaker Output
ME1	12532769	Tuning Meter
SW7A-D	24031363	Function Selector Switch
FU4, 5	45032129*	Fuse, 2A
PL8	46532121*	Lamp, Power Indicator, 8V, 60MA

REF DES.	H/K PART NO.	DESCRIPTION
MULTI-VOLTAGE RECEIVER		
	00132871	AM/FM Tuner, IF and MPX PC Bd Assy (Includes SW201)
		Pushbutton, Power
SW8	63232869	Rotary Switch, Power Source Voltage Selector
J2	65432870	Rec/PB Jack (DIN 5 PIN)
T1	10132814	Power Transformer
SW6	25029514	Pushbutton, Power
SW201	24531335	Slide Switch (on PC Bd)

NOTE TO WARRANTY STATIONS: Items marked by asterisk (*) are recommended spare parts stock. Printed circuit board assembly numbers are shown for reference only. Harman/Kardon does not normally supply assembled printed circuit boards.

NOTE: To speed handling of your order be sure to include both the model and serial numbers, in addition to the quantity, part number and part description of the items ordered. Orders from independent dealers, independent servicemen, and retail customers will be shipped on a cash in advance basis. Harman/Kardon reserves the right to substitute equivalent parts for those originally installed in this chassis. All parts should be ordered from Harman/Kardon, 55 Ames Court, Plainview, L.I., N.Y. 11803, Att: Parts Department.